SECOND INTERNATIONAL GERONTOLOGICAL CONGRESS

Fourth Annual Scientific Meeting of
Gerontological Society, Inc.

September 9 to 14, 1951

JEFFERSON HOTEL

415 North Twelfth Street, St. Louis, Missouri, U. S. A.

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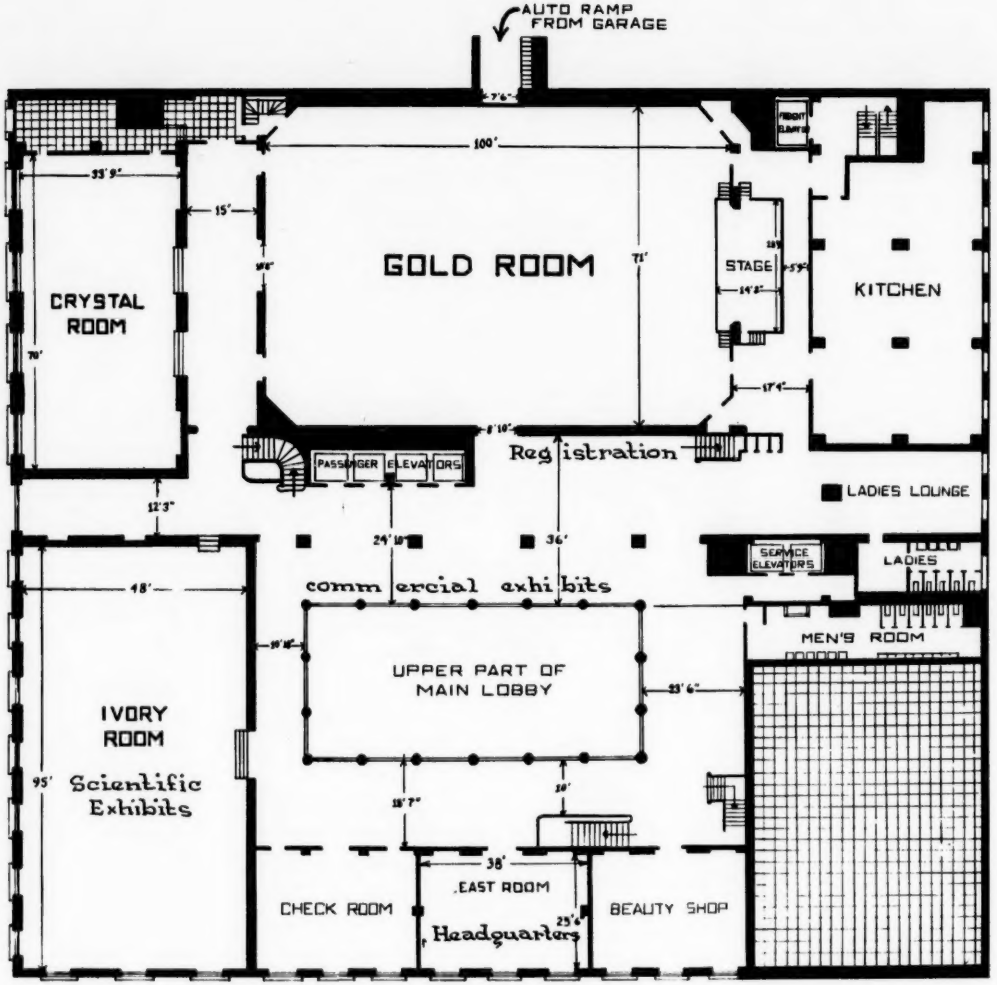
JEFFERSON HOTEL

	GOLD ROOM	CRYSTAL ROOM	ROOM 3	ROOM 4 (Official Delegates)	ROOM 5 (Press)	ROOM 6
Sun. A. M.						
Sun. P. M.	8:00: Reception		4:00-5:00: Movies		4:30: Press Conference	6:30: Dinner meeting of the Governing Body
Sept. 9						
Mon. A. M.	9:30-10:30: General Assembly of Congress 10:30-12:00: I. Aging of the Nervous System	10:30-12:00: II. Aging as a Psychologic Process				
Mon. P. M.	1:30-4:30: I. Aging of the Nervous System	1:30-3:30: II. Aging as a Psychologic Process				
Sept. 10	7:30: Welcoming Dinner	3:30-5:00: II. Organization of Committees 6:00: Cocktails	4:00-5:00: Movies			
Tues. A. M.	9:00-12:00: I. Senescence of the Cardiovascular System	9:00-12:00: II. Personality Development in Later Maturity				
Tues. P. M.	1:30-4:30: I. Senescence of the Cardiovascular System	1:30-4:30: II. The Church and the Aged	4:00-5:00: Movies			
Sept. 11						
Wed. A. M.	9:00-12:00: I. Nutritional Aspects of Aging	9:00-12:00: II and III. Community Services and Plans for the Aged	9:00-12:00: II. Committee meetings	9:00-12:00: II. Committee meetings		9:00-12:00: II. Committee meetings
Wed. P. M.	1:30-4:00: I. Nutritional Aspects of Aging	1:30-4:00: II. Group Activities and Recreation for Older People	1:30-2:30: I. Cosmetologic Aspects of Aging			
Sept. 12		4:00-5:30: Business Meeting of Gerontological Society, Inc.	2:30-5:00: Movies	4:00-5:00: III. Discussion of International Program for Welfare of the Aged		
Thurs. A. M.	9:00-12:00: I. Aging of Connective Tissues	9:00-12:00: II. Education for Middle Age and Later Maturity				
Thurs. P. M.	1:30-4:30: I. Panel Discussion: What Is Aging?	1:30-4:30: II. Adjustment and Health in Later Maturity	12:15: Luncheon Meeting of the 4 Program Directors to formulate report for Governing Body			
Sept. 13						
Fri. A. M.	9:00-12:00: I. Endocrinologic Aspects of Aging	9:00-12:00: II. Psychologic Aspects of Work and Retirement				
Fri. P. M.	1:30-4:30: I. Endocrinologic Aspects of Aging	1:30-3:00: II. Sociologic Studies of Old Age				
Sept. 14	4:30-5:30: General Assembly	3:00-4:00: II. Reports of Committees				
	7:30: Concluding Dinner	6:30: Cocktails	3:00-4:00: Movies			

I—Section I, Biology and Medicine.
II—Section II, Sociology, Psychology, Education, and Religion.

JEFFERSON HOTEL			BISHOP TUTTLE MEMORIAL		
ROOM 7	ROOM 8	ROOM 9	AUDITORIUM	ROOM A	ROOM B
3:00-4:30 Joint Meeting of Governing Body and Executive Committee of Congress					
10:30-12:00: I. Inheritance and Environment in Relation to Aging	10:30-12:00: I. Cancer and Aging	10:30-12:00: I. Geriatric Medicine: Therapeutic Aspects	10:30-12:00: III. Population Trends and Policies	10:30-12:00: IV. Personal Problems of the Aging	
4:00-5:30: Meeting of the Council of Gerontological Society, Inc.	1:30-4:30: I. Cancer and Aging	1:30-4:30: I. Gynecologic Aspects of Old Age	1:30-4:30: III. Population Trends and the Labor Force	1:30-4:30: IV. Medical and Social Problems of the Aging	1:30-4:30: I. Medical Aspects of Rehabilitation of the Aged
5:00: Selection of principal representatives of foreign countries	5:00: Selection of principal representatives of foreign countries	5:00: Selection of principal representatives of foreign countries		4:30-6:00: IV. Section Meeting to Consider Procedures for Formulating Section Report	
9:00-12:00: IV. Institutional Care of the Aged	9:00-12:00: I. Surgical Aspects of Old Age	9:00-12:00: III and IV. Disabilities Among Older People	9:00-12:00: I. Anatomic and Histologic Age Changes	9:00-12:00: IV. The Practice of Geriatrics	9:00-12:00: III. Income Maintenance for the Aged
1:30-4:30: IV. The Geriatric Patient in Modern Society	1:30-4:30: IV. Health Services for the Aging	1:30-4:30: I. Surgical Aspects of Old Age	1:30-4:30: I. Anatomic and Histologic Age Changes	1:30-4:30: III and IV. Incidence and Prevalence of Disability: Costs and Programs	1:30-4:30: Teamwork Approach to the Care of the Patient in His Home
9:00-12:00: II. Committee Meetings	9:00-12:00: I. Pathologic - Anatomic Aspects of Aging	9:00-12:00: I. Internal Medicine in Relation to Aging	9:00-12:00: I. Arteriosclerosis in Relation to Aging	9:00-12:00: III and IV. Rehabilitation for Employment	9:00-12:00: II and IV. Industrial Hygiene and the Aging
1:30-4:00: III. Employment and Retirement	1:30-4:00: III. Economic and Social Problems of an Aging Population	1:30-4:00: I. Internal Medicine in Relation to Aging	1:30-4:00: I. Arteriosclerosis in Relation to Aging	1:30-4:00: III and IV. Industry, Labor and the Community Look at Retirement	1:30-4:30: III. Community Services and Planning for the Aged
		5:00: Meeting of principal representatives of foreign countries		4:30-6:00: IV. Section Meeting to Consider Preliminary Report	
9:00-12:00: IV. Designs for Living	9:00-12:00: IV. Safety in Living	9:00-12:00: IV. Housing for the Aged	9:00-12:00: I. Biologic and Physiologic Aspects of Aging	9:00-12:00: II, III and IV. Effective Employment Practices Related to the Older Worker	9:00-12:00: III. Planning for the Aged in Various Countries of the World
	1:30-4:30: I. Urologic Aspects of Aging	1:30-4:30: IV. Housing and Living Arrangements	1:30-4:30: I. Endocrinologic Aspects of Aging	1:30-4:30: II, III and IV. Effective Employment Practices Related to the Older Worker	1:30-4:30: III. Planning for the Aged in Various Countries of the World
				4:30-6:00: IV. Section Meeting to Adopt Final Report	
	9:00-12:00: I. Cellular Aging	9:00-12:00: I. Psychiatric Aspects of Aging	9:00-12:00: I. Hypertension in Relation to Aging	9:00-12:00: III and IV. Inter-relationships Between Different Fields of Gerontology	
1:30-2:30: Meeting of Governing Body and Section Chairmen	1:30-4:30: IV. Yesterday, Today, and Tomorrow in an Aging World	1:30-4:30: I. Psychiatric Aspects of Aging	1:30-4:30: I. Hypertension in Relation to Aging		
3:00-4:00: Final meeting of the Governing Body					

III—Section III, Economics, Employment, and Welfare.
IV—Section IV, Medical Services, Hygiene, and Housing.



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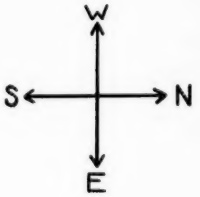

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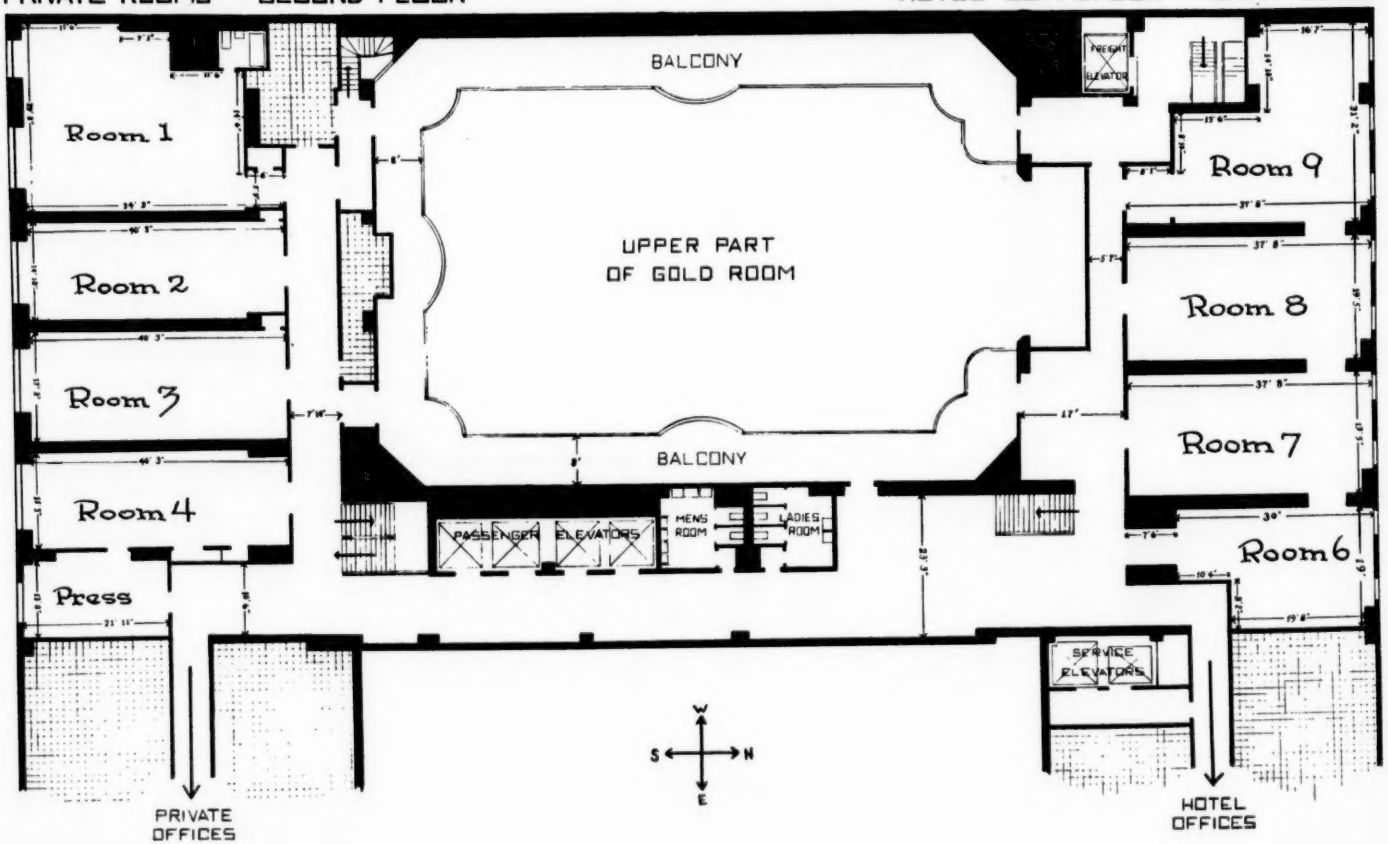

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Summary of Various Activities

(This program is scheduled according to Central Daylight Saving Time)

SATURDAY—September 8

1:00 p. m. Installation of exhibits in Ivory Room and part of Mezzanine.

Executive Office of Congress: (East Room, Mezzanine) September 8-14.

Office for Official Representatives: (Room 4, Second Floor). September 9-14.

SUNDAY—September 9 Congress opens officially.

Entire Day Installation of exhibits.

9:30 a. m. - 4:30 p. m. Registration (Mezzanine).

Registration fee $10.00. (This fee entitles the registrant to the following:

Admittance to the various section meetings.

One complimentary ticket for Concluding Dinner.

Privilege of registering for the various activities for themselves and the ladies accompanying them. Extra dinner tickets $5.00 each).

12:30 p. m. Radio Broadcast, University of Chicago Round Table.

3:00 p. m. - 4:30 p. m. Joint Meeting of Governing Body of the International Association of Gerontology and of the Executive Committee of the Congress (Room 7, Second Floor).

4:00 p. m. - 5:00 p. m. Movies (Room 3, Second Floor).

4:30 p. m. Press Conference—Organization of Publicity (Room 5, Second Floor).

6:30 p. m. Dinner meeting of the Governing Body (Room 6, Second Floor).

8:00 p. m. Informal reception for all members and guests attending the Congress. (Gold Room).

MONDAY—September 10

9:00 a. m. Opening of exhibits.

9:00 a. m. - 12:00 noon Registration concluded.

9:30 a. m. - 10:30 a. m. General Assembly. (Gold Room).

Chairman: E. V. Cowdry.

Invocation: Rabbi F. M. Isserman.

Brief addresses by—

L. Brull, President—International Association of Gerontology.

E. V. Cowdry, President—Second International Gerontological Congress.

R. A. Moore, President—Gerontological Society, Inc.

W. O. Thompson, President—American Geriatrics Society.

Mrs. H. C. Houghton, President—General Federation of Women's Clubs.

V. Korenchevsky—Founder of the International Association of Gerontology.

4:00 p. m. - 5:30 p. m. Meeting of Council of Gerontological Society, Inc. (Room 7, Second Floor).

4:00 p. m. - 5:00 p. m. Movies (Room 3, Second Floor).

5:00 p. m. Selection of principal representatives of foreign countries participating in the Congress. (When any nation is represented by a single individual, that individual is automatically the principal representative. When a nation is represented by several individuals it is necessary for them to choose a principal representative). In cases where a representative has been appointed by his or her Government, he or she is the principal representative. (Rooms 7, 8, and 9, Second Floor).

6:30 p. m. Cocktails (Crystal Room) All attending the Congress are invited.

7:30 p. m. Welcoming Dinner in the Gold Room (Tickets $5.00 per person —Informal dress).

Chairman: E. V. Cowdry.

Invocation: Bishop A. G. Lichtenberger.

Introduction of principal representatives.

Brief addresses of welcome by representatives of American organizations.

TUESDAY—September 11

11:00 a. m. - 12:00 noon Period allotted for viewing of exhibits.
(Scientific Exhibits, Ivory Room—Commercial Exhibits, Mezzanine).

11:00 a. m. - 1:45 p. m. Trip to Ralston Purina Mills Research Laboratories, including luncheon. (This trip is open to all but limited to the first 60 registering for this event. Please sign up for this activity at time of registration or not later than 9:00 a. m. Tuesday). Ralston Purina Mills will provide free transportation in special buses leaving the Twelfth Street entrance of the Jefferson Hotel at 11:00 a. m.

2:00 p. m. - 4:00 p. m. Visit to the Central Institute for the Deaf where there will be demonstrations of activities. (This trip is open to all but limited to the first 100 registering for this event. Please sign up for this activity at time of registration.) Special buses leaving the Twelfth Street entrance of the Jefferson Hotel at 1:30 p. m. will provide free transportation.

4:00 p. m. - 5:00 p. m. Movies (Room 3, Second Floor).

6:00 p. m. Reception for foreign visitors and their wives by the President of St. Louis University and the Dean and Faculty Board of St. Louis University School of Medicine, assisted by the Women's Faculty Club. Special buses leaving the Twelfth Street entrance of the Jefferson Hotel at 5:30 p. m. will provide free transportation.

WEDNESDAY—September 12

9:00 a. m. - 5:00 p. m. Exhibits.

10:30 a. m. - 2:00 p. m. Tour of St. Louis Dairy, followed by buffet luncheon. (Open to all but limited. Please sign up for this trip at time of registration.) Special buses leaving the Twelfth Street entrance of the Jefferson Hotel at 10:30 a. m., 11:00 a. m., and 11:30 a. m. will provide free transportation.

4:00 p. m. Business meeting of Gerontological Society, Inc. (Crystal Room).

2:30 p. m. - 5:00 p. m. Movies, (Room 3, Second Floor).

5:00 p. m. Meeting of principal representatives of foreign countries to select six speakers for the Concluding Dinner on Friday evening. (Room 9, Second Floor).

4:30 p. m. - 9:00 p. m. Old-fashioned barbeque for foreign visitors and their wives at Kuhs Farm, the home of Mr. and Mrs. E. L. Kuhs. (Please sign up for this trip at time of registration.) Special buses leaving the Twelfth Street entrance of the Jefferson Hotel at 4:30 p. m. will provide free transportation.

5:00 p. m. - 9:00 p. m. Tour of Anheuser Busch Brewery, followed by supper. (Open to all but limited to the first 200 registering for this event.) Special buses leaving the Twelfth Street entrance of the Jefferson Hotel at 5:00 p. m. will provide free transportation.

THURSDAY—September 13

9:00 a. m. - 5:00 p. m. Exhibits.

12:15 p. m. Luncheon meeting of the four Program Directors to formulate report for Governing Body (Room 3, Second Floor).

2:00 p. m. - 10:30 p. m. Tour of local points of interest. (Open to all. Please sign up for this trip at time of registration.) Special buses leaving the Twelfth Street entrance of the Jefferson Hotel at 2:00 p. m. will provide free transportation for the entire trip.

This tour will stop in Forest Park for the Chimpanzee Show and later go to the St. Louis Art Museum where light refreshments will be served from 5:00 p. m. to 6:00 p. m.

5:45 p. m. (continuing tour) From the St. Louis Art Museum this group will be taken to the home of Chancellor and Mrs. A. H. Compton of Washington University where a buffet supper will be served.

8:00 p. m. (continuing tour) The group will then continue to the Washington University Quadrangle where the Washington University School of Medicine will sponsor an Open Air Symphony Concert. Conductor, L. Gerdine, Blewett Professor of Music at Washington University.

Those attending the scientific meetings and guests are invited to join those who were on the entire tour at the Art Museum during the refreshment hour and continue on to the buffet supper and open air concert.

4:45 p. m. Buses leaving the Twelfth Street entrance of the Jefferson Hotel will provide free transportation to the Art Museum, the Compton residence, and the concert.

6:00 p. m. Closing of exhibits.

FRIDAY—September 14

1:30 p. m. - 2:30 p. m. Meeting of the Governing Body of the International Association of Gerontology at which the Directors of the four sections will present their reports of the Congress. (Room 7, Second Floor).

3:00 p. m. - 4:00 p. m. Final Meeting of the Governing Body of the International Association of Gerontology (Room 7, Second Floor).

3:00 p. m. - 4:00 p. m. Movies (Room 3, Second Floor).

4:30 p. m. - 5:30 p. m. General Assembly: (Gold Room)

Chairman: L. Brull

Presentation of report of Governing Body of the International Association of Gerontology, including recommendations, new officers, and location of the next Congress.

6:30 p. m. Southern Cocktail Hour (Crystal Room). All are invited to be guests of the Southern Comfort Corporation.

7:30 p. m. Concluding Dinner (Gold Room—Informal dress).

Chairman: C. Tibbitts.

Invocation: Archbishop J. E. Ritter.

Brief addresses by principal representatives of foreign countries.

Program of Scientific Sessions

J. E. KIRK, *Program Chairman*

SECTION I: BIOLOGY AND MEDICINE

Director: J. E. Kirk

(In those sessions of Section I which include problem indentification at the end of the period a discussion has been arranged with invited speakers for the purpose of identifying the most important and feasible research problems within the field. The discusssion will be conducted by the chairman of the session. At the conclusion of the discussion period participation from the audience will be invited.)

Monday Morning, September 10
10:30 a. m. - 12:00 noon

(A) Aging of the Nervous System—Jefferson Hotel, Gold Room
(First Session)

Chairmen: L. Brull
L. van der Horst
N. M. Sulkin

1. WILCOX, H. H. Changes Accompanying Aging in the Brains of Guinea Pigs.
2. KUNTZ, A. Variations in Autonomic Ganglia in Man Which Are Related to Aging.
3. SULKIN, N. M. Histochemical Studies of Autonomic Ganglion Cells in Relation to Aging in the Dog.
4. ALTSCHUL, R. The Feulgen-Schiff Stain in the Study of Age Changes in the Nervous System.
5. VOGT, O. Study of the Aging of Nerve Cells.

(B) Geriatric Medicine: Therapeutic Aspects. Panel Discussion
Jefferson Hotel, Room 9

Chairmen: E. J. Stieglitz
M. W. Warren

Participants: E. J. Stieglitz
M. W. Warren
W. B. Kountz
L. A. Pratt

(C) Cancer and Aging—Jefferson Hotel, Room 8
(First Session)

Chairmen: A. von Albertini
P. Rondoni

1. JONES, E. E. A Study of the Mammary Glands in Mature and Old Mice of the C_3H and C_3H—Strains With Special Reference to the Occurrence of Hyperplastic Nodules.
2. DUNN, T. B. Neoplasia in Mice Without the Mammary Tumor Agent. Significance in Relation to Aging.

3. PARFENTJEV, I. A., and DURAN-REYNALS, F. Serum Protein Pattern and Antibody Titer During Life Span.
4. RONDONI, P. Esperimenti su Alcuni Veleni Mitotici.
5. DURAN-REYNALS, F., and BRIODY, B. A. The Age Factor in Neoplastic Infection.

(D) Inheritance and Environment in Relation to Aging—Jefferson Hotel, Room 7

Chairmen: E. Jalavisto
P. Palmgren

1. STRONG, L. C. Gerontologic Implications of Fibrosarcoma Susceptibility in Mice.
2. JALAVISTO, E. Genetics of Aging.
3. LANSING, A. I. A Cytoplasmic Factor in Aging.
4. PALMGREN, P. On the Ecologic Background of the Life Span.
5. SPENCER, R. R., and MELROY, M. B. Studies in Survival, Population Erosion, and Population Vigor of Bacteria.

Monday Afternoon, September 10
1:30 p. m. - 4:30 p. m.

(A) Aging of the Nervous System—Jefferson Hotel, Gold Room (Second Session)

Chairmen: A. Kuntz
A. C. Furstenberg
J. L. K. Tsang

1. BATEMAN, J. F., and PAPEZ, J. W. Aging of the Nervous System.
2. BIESTER, H. E. Myxomatous and Mucoid Changes in the Sciatic Nerve and Brachial Plexus of Aged Animals.
3. SOSA, J. M. Aging of Neurofibrils.
4. SOSA, J. M. Aging of the Golgi Apparatus in Nerve Cells.
5. THOMPSON, L. J., and MUNDORF, G. Presenile Cortical Atrophy.
6. RUIZ LARA, R., and BARRAQUER BORDAS, L. La Rigidez Senil.
7. RICHER, R., STERN, K., and BIRMINGHAM, M. K. The Relation. of Age to the Effect of Morphine on the Metabolism of Mouse Brain.
8. OBRIST, W. D. The Electroencephalogram of Normal Male Subjects Over Age 75.
9. O'LEARY, J. L., and LAM, R. L. Survey of the Clinical Uses of the Electroencephalogram During Aging.
10. FAZEKAS, J. F., and ALMAN, R. W. The Influence of Age on Cerebral Metabolism and Blood Flow.

Problem Identification.

READ BY TITLE:

11. BACH, L. M. N. Studies on the Relations Between the Respiratory and Vasomotor Centers of the Brainstem and the Somatic Facilitatory and Inhibitory Reticular Formation.

(B) Gynecologic Aspects of Old Age—Jefferson Hotel, Room 9

Chairman: W. M. Allen

1. ALLEN, W. Menopausal Bleeding.
2. GREENBLATT, R. B. Some Newer Concepts in the Management of the Menopausal Patient.
3. HELLBAUM, A. A. The Mechanism of Menopausal Vasomotor Symptoms.
4. SHEARMAN, A. M., VOGEL, M., and McGAVACK, T. H. Response of the Vaginal Smears of Postmenopausal Women to Single Doses of Estrogens.
5. MASTERS, W. H. Histologic Results of Endocrine Replacement in the Aged Female. A Preliminary Report.

(C) Cancer and Aging—Jefferson Hotel, Room 8
(Second Session)

Chairmen: R. R. Spencer
J. Maisin

Panel: A. v. Albertini
J. C. Aub
G. O. Gey
W. C. Hueper
A. G. Marshak

1. ROGERS, J. B. Spontaneous Tumors of Senile Guinea Pigs.
2. MARTIN, H. M. The Apparent Relation of Certain Neoplasms in Domestic Animals to Senescence.
3. MILLAN, I. The Prevention of Cancer in Old Age.
4. ALBERTINI, A. v. Cancer and Age. Gerontologic Aspects of the Problem of Cancer.
5. KLOPP, C. T. Cancer in Aging. Its Relation to the Clinical Course of the Disease.
6. DORN, H. F. Morbidity from Cancer in Relation to Age.
7. HUEPER, W. C. Age Aspects of Environmental and Occupational Cancer.

Problem Identification.

(D) Medical Aspects of Rehabilitation of the Aged—Bishop Tuttle Memorial, Room B, Fourth Floor

Chairmen: J. Fleetwood
L. Cosin

1. WARREN, M. W. Rehabilitation of the Hemiplegic.
2. KAUFMAN, W. Therapeutic Reversal of a Common Clinical Manifestation of the Normal Aging Process—Decreased Joint Mobility.

3. MUELLER, E. E., and MEAD, S. The Electromyogram in Rheumatoid Arthritis.
4. PERLMAN, R. M. Rehabilitation of Markedly Debilitated Aged and Aging Subjects.
5. DACSO, M. M. Clinical Problems in Gerontologic Rehabilitation.

Problem Identification.

Tuesday Morning, September 11
9:00 a. m. - 12:00 noon

(A) Senescence of the Cardiovascular System—Jefferson Hotel, Gold Room
(First Session)

Chairmen: H. W. Lovell
F. Vega Diaz
C. J. Van Slyke

1. COSTELLO, C. Sympathectomy in the Management of Arteriosclerosis Obliterans. Results in 150 Consecutive Cases.
2. EDWARDS, J. C. The Diagnosis and Treatment of Patients with Arteriosclerosis Obliterans—Evaluation of Patients for Sympathectomy.
3. HERBEUVAL, R., and BASSOT, —. Etude sur l'Artère Temporale Sénile.
4. OLBRICH, O. Electrocardiographic Changes in the Aged. I. Statistical Evaluation of P.Q.R.S. and T. Amplitude and Duration. II. Changes in Left Ventricular Hypertrophy in the Aged as Compared with the Published Normal Values for the Young.
5. SIMONSON, E., and KEYS, A. Electrocardiographic Age Trends in Young and Middle-Aged Men.
6. HARKIN, J. C., and BEBER, M. The Electrocardiogram in Aged Individuals.
7. VEGA DIAZ, F. Limits Between the Normal and the Pathologic State in the Senescent Cardiovascular System.
8. TAYLOR, H. L., BROZEK, J., and KEYS, A. Basal Cardiac Output in Young and Middle-Aged Men and Its Relation to Body Composition.
9. HERBEUVAL, R., SAIVRE, —, REMY, —, and SABIANI, —. La Circulation Coronaire chez le Viellard.
10. TRAUT, E. F., CARTER, J. B., and GUMBINER, S. H. Acute Inflammation of the Aging Heart.
11. FRIEDLANDER, R. D., and PERLMAN, R. M. Steroid Hormones and the Aging Human Heart.

(B) Surgical Aspects of Old Age—Jefferson Hotel, Room 8
(First Session)

Chairmen: P. Heinbecker
Y. Koya

1. FOLDES, F. F. Preoperative Preparation and Postoperative Care of the Aged.
2. MORCH, E. T., and LORHAN, P. H. Anesthesia for the Aged Patient.
3. RICE, C. O. Adequate Parenteral Nutrition in the Elderly Surgical Patient Without Overhydration.
4. BELING, C. A., BOSCH, D. T., and CARTER, O. B., JR. Blood Volume in Geriatric Surgery.
5. DALTON, A. R., LEMMER, R., and ANSCHUETZ, R. Relation of Age to Wound Healing.
6. ZIFFREN, S. E. The Reducton in Operative Mortality in the Very Aged.
7. DAVIS, H. H. Surgical Disease of the Mammary Glands in the Aged.

(C) Anatomic and Histologic Age Changes—Bishop Tuttle Memorial, Auditorium, Fourth Floor
(First Session)

Chairmen: W. Andrew
R. A. M. Bergman

1. BAUER, W. H. Age Changes in Human Parotid Glands.
2. JAYNE, E. P. Age Changes in the Adrenal Gland.
3. RANDOLPH, K. H., GETTY, R., FOUST, H. L., and RAMSEY, F. K. Growth Changes in the Adrenal Gland of the Dog from Birth to 2 Years of Age.
4. THURINGER, J. M., and KATZBERG, A. A. Aging of the Human Epidermis as Reflected in Dimensional Changes and Mitotic Ratios.
5. COOPER, Z. K., THURINGER, J. M., and KATZBERG, A. A. Age Variations in Mitotic Frequency and Pattern of the Rete in Human Epidermis.
6. DUGGINS, O. H., and TROTTER, M. Early Age Changes in Head Hair.
7. KHEIM, T. The Effect of Age on the Smooth Muscle Layers of the Human Colon.

Tuesday Afternoon, September 11
1:30 p. m. - 4:30 p. m.

(A) Senescence of the Cardiovascular System—Jefferson Hotel, Gold Room
(Second Session)

Chairmen: P. D. White
O. Olbrich
K. J. Franklin

1. SCARZELLA, R., MARS, G., and MORPURGO, M. Vascular Mesenchymal Changes in Old Age.

2. GEILL, T., and KIÆR, W. Further Investigations of the Age Changes in the Annulus Fibrosus Mitralis.
3. VEGA DIAZ, F. Syncopes of Cardiovascular Origin in Old Age.
4. GREPPI, E., MININNI, G., and SCARDIGLI, G. Variations of Some Humoral Levels from Adult and Presenile to Old Age with Special Regard to the Plethoric Constitution.
5. GERTLER, M. M. The Young Candidate for Coronary Heart Disease.
6. MEDALIA, L. S., and WHITE, P. D. Diseases of the Aged—An Analytic Study of Pathologic Findings in 1251 Autopsy Protocols in the Aged.
7. GOLDWATER, L. J., and BRONSTEIN, L. H. Occupational Potentialities of the Older Cardiac Patient.

Problem Identification.

READ BY TITLE:

8. ERICKSON, E. E., and LEV, M. Aging Changes in the Human A-V Node, Bundle, and Bundle Branches.

(B) Surgical Aspects of Old Age—Jefferson Hotel, Room 9
(Second Session)

Chairmen: R. Elman
H. H. Davis

1. POTTER, W. H., ANDERSEN, M. N., and STEWART, J. D. Gastric Surgery in the Aged.
2. ROBINSON, S. W. Several Gastro-Intestinal Problems of Particular Importance to the Older Patient.
3. CUTLER, C. W. Acute Intestinal Obstruction in Elderly Patients.
4. CARP, L., and ARMINIO, J. A. Acute Appendicitis in Chronically Ill Geriatric Patients. Report on 21 Cases Past Age of 60.
5. FISHER, H. C. Gallbladder Disease Above the Age of 70.
6. REYNOLDS, F. C., and KEY, J. A. The Surgical Treatment of Degenerative Arthritis of the Hip in the Aged (Malum Coxae Senile).
7. BADGLEY, C. E. Response of the Aged to Surgery of the Hip.

Problem Identification.

(C) Anatomic and Histologic Age Changes—Bishop Tuttle Memorial, Auditorium, Fourth Floor
(Second Session)

Chairmen: R. Herbeuval
M. Trotter

1. SMITH, C., KRAEMER, D. Z., and HOLT, E. S. Aging Changes in the Vascular Pattern of the Thymus of the Mouse.
2. BAST, T. H. The Human Otic (Endolymphatic) Sac from Birth to Old Age.
3. BAST, T. H. Body Changes in the Human Otic Capsule.
4. COVELL, W. P. Histologic Changes in the Aging Cochlea.

5. ROCHE, M. B., and ROWE, G. G. Relation of Separate Neural Arch to Age.
6. HERBEUVAL, R., PIERSON, —, and BASSOT, —. Etude de la Moelle Osseuse Chez le Vieillard.
7. BOHATIRCHUK, F. Some Applications of Macro- and Microradiography in the Study of Aging and Old Bone Tissue.

Wednesday Morning, September 12
9:00 a. m. - 12:00 noon

(A) Nutritional Aspects of Aging—Jefferson Hotel, Gold Room
(First Session)

Chairmen: R. A. Moore
H. Dam
A. J. Carlson

1. HAMILTON, T. S. A Study of the Utilization of Calcium by Mature Rats of Different Ages Using Radioactive Calcium-45.
2. ACKERMANN, P. G. Calcium and Phosphorus Balance Studies in Elderly Individuals.
3. VINTHER-PAULSEN, N. Calcium and Phosphorus Intake in Senile Osteoporosis.
4. KOUNTZ, W. B. Nitrogen Balance in Elderly Individuals as It Is Influenced by Various Other Substances.
5. ALBANESE, A. A., and HIGGONS, R. A. Protein Requirements of Old Age.
6. HORVATH, S. M., and TUTTLE, W. W. A Comparison of the Specific Dynamic Action of Proteins in Young and Old Male Subjects.
7. HORWITT, M. K. Comparative Effects of Nutritional Deficiencies in Old and Young.
8. FLACK, K. E. Building Low Cost Diets of High Nutritional Value.
9. OHLSON, M. A., JACKSON, L., MARIN, R., DUNSING, D., and BREWER, W. D. The Utilization of an Improved Diet by Selected Older Women.
10. ALESSANDRINI, P. The Diet in Old Age.

(B) Internal Medicine in Relation to Aging—Jefferson Hotel, Room 9
(First Session)

Chairmen: A. M. Araujo
J. Groen

1. STANLEY, A. J., SHETLAR, M. R., BOZALIS, G. S., HUFF, D. H., CUSHING, V. D., ANNADOWN, R., and CAWLEY, L. A Theory of the Mechanism of Action of Adrenocorticotrophic Hormone (ACTH) in Intractable Asthma.
2. COLLENS, W. S., ZILINSKY, J. D., GREENWALD, J. J., and STERN, A. B. A New Extract Derived from Pregnant Mammalian Liver. Its Effect on Hypertrophic Osteoarthritis and Peripheral Neuropathy.

3. RABINOWITCH, I. M. Experiences with a New Liver Extract for the Treatment of Diabetic Neuropathies.
4. TANAKA, G. M., and EDWARDS, J. C. Further Observations on Combined Drug Therapy of Parkinson's Disease.
5. SWEET, H. C. Bronchiectasis and Chronic Bronchitis in the Aged.
6. UNNA, K. R., and VERNIER, V. G. Modern Approaches to the Pharmacotherapy of Neuromuscular Disorders.
7. FLEETWOOD, J. The Use of Nicotinamide in Cerebral Arteriosclerosis.
8. GROEN, J., DUYVENSZ, F., REISEL, J. H., and HALSTEAD, J. A. Diffuse Alveolar Atrophy of the Jaw, a Form of Presenile and Senile Paradental Disease and Its Relationship to Presenile and Senile Osteoporosis of the Spine.
9. MYERS, J. A. Tuberculosis Among the Aged.
10. GOLDSTEIN, H. I. Peptic Ulcer in the Aged.

(C) Pathologic-Anatomic Aspects of Aging—Jefferson Hotel, Room 8

Chairmen: J. A. Saxton, Jr.
M. L. Binet

1. ROGERS, J. B. Age Changes in the Kidney of the Guinea Pig.
2. ROSAHN, P. D. Some Observations on a Colony of Aging Mice.
3. McCAY, C. M. Comparable Age Changes in the Dog, Rat, and Hamster.
4. EVANS, H. M., ASLING, C. W., and SIMPSON, M. E. Some Characteristics of the Skeleton of the Senile Rat.
5. SILBERBERG, M., and SILBERBERG, R. The Relation Between Age and Tissue Response to Stimuli.
6. DUGUID, J. B. The Prevalance of Pulmonary Emphysema Beyond Middle Age.

(D) Arteriosclerosis in Relation to Aging– Bishop Tuttle Memorial, Auditorium, Fourth Floor
(First Session)

Chairmen: J. F. Rinehart
N. Dungal
M. Beltrán Báguena

1. WALSH, L. S. N., and JENSEN, J. Senescence and Arteriosclerosis.
2. ALBERTINI, A. v. Arteriosclerosis and Age in Terms of Human Pathology.
3. ALTSCHUL, R. Cellular Patterns of the Vessel Wall. Their Disorganization by Aging and in Arteriosclerosis.
4. RINEHART, J. F., MOON, H. D., and GREENBERG, L. D. Studies of Human Arteriosclerosis and Experimental Arteriosclerosis of Pyridoxine Deficiency.
5. TAYLOR, A. N. Hemodynamics and Plaque Formation in Experimental Atherosclerosis.

6. HEINBECKER, P. Endocrine Factors in the Pathogenesis of Arteriosclerosis.
7. DUNGAL, N. Atherosclerosis and the Thyroid Gland.
8. JOHANSSON, G. –. A. Studies on Human and Experimental Hyperlipemia with and Without Atheromatosis.
9. BELTRAN BAGUENA, M. Acción del Alfatocoferol Sobre la Regresión de las Lesiones de la Aterosclerosis Experimental Colesterínica del Conejo.
10. MININNI, G., CAPPELLI, P., and CHECCHIA, C. Lecithin in Experimental Atherosclerosis in the Rabbit.

Wednesday Afternoon, September 12
1:30 p. m. - 4:00 p. m.

(A) Nutritional Aspects of Aging—Jefferson Hotel, Gold Room
(Second Session)

Chairmen: C. M. McCay
T. Geill
P. Alessandrini

1. RUDZINSKA, M. A. The Effect of Overfeeding and Starvation on the Life Span and Reproduction of *Tokophrya infusionum,* a Protozoan of the Class Suctoria.
2. SCOTT, E. B., and SCHWARTZ, C. Some Effects of Phenylalanine, Methionine, and Threonine Deficient Diets on the Rat.
3. PERLMAN, R. M., and WINSTON, S. J. A Study in Cholesterol and Carbohydrate Metabolism.
4. TUTTLE, W. W. The Effect of Different Types of Breakfasts on the Blood Sugar Level of Men Past 60 Years of Age, and the Effect of Age on the Fasting Blood Sugar Level, and on Sugar Tolerance.
5. VISSCHER, M. B., and KING, J. T. Chemical Studies of the Whole Mouse Carcass in Relation to Age and Calorie Restriction.
6. CARLSON, A. J., and HOELZEL, F. Nutrition, Senescence, and Rejuvenescence.

Problem Identification.

READ BY TITLE:

7. CHIEFFI, M., and KIRK, J. E. The Rate of Destruction of Thiamine by Gastric Juice of Old Individuals.

(B) Internal Medicine in Relation to Aging—Jefferson Hotel, Room 9
(Second Session)

Chairmen: G. O. Broun
F. D. Zeman

1. BROUN, G. O. The Age Incidence of Certain Neurotropic Virus Infections.
2. SHAPLEIGH, J. B., MAYES, S., and MOORE, C. V. Hematologic Values in the Aged.

3. ANDREANI, G., and MININNI, G. The Use of Lipocaic in the Treatment of Presenile and Old Patients with Diabetes Complicated by Hypertension and Atherosclerosis.
4. MEULENGRACHT, E., and SCHWARTZ, M. Periarthrosis Humeroscapularis. Course and Prognosis of 78 Cases.
5. TROTTER, M., and GLESER, G. Aging and Stature.
6. MOORE, S. Endocranial Extostoses.
7. ISHMAEL, W. K. Degenerative Diseases of Bone in the Aging.
8. SCARDIGLI, G., SALVINI, I., and GRANDONICO, F. Disorders of Protein Metabolism as Humoral Indices of Plethoric Disease.
9. ANREP, G. V. Biologic Action of Khellin.

READ BY TITLE:

10. FRASCHINI, A. Diseases of Senescence and Old Age and Biologic Reinvigorating Methods.

(C) Cosmetologic Aspects of Aging—Jefferson Hotel, Room 3

Chairmen: J. E. Kirk
M. Chieffi

1. BROWN, A. M. Sculptural Anatomy and Surgery of Facial Senescence.

(D) Arteriosclerosis in Relation to Aging—Bishop Tuttle Memorial, Auditorium, Fourth Floor
(Second Session)

Chairmen: O. J. Pollak
F. Henschen
H. S. Simms

1. LEARY, T. Cholesterol and Man.
2. ADLERSBERG, D., ZAK, F. G., and HELPERN, M. Comparative Studies on Coronary Atherosclerosis in Young and Old Age.
3. JACKSON, R. S., and WILKINSON, C. F., JR. The Ratio Between Phospholipids and the Cholesterols of Blood as an Index of Human Atherosclerosis.
4. GROEN, J., KAMMINGA, C. E., TJIONG, B. K., and WILLEBRANDS, A. F. The Influence of Nutrition and Some Other Factors, Including Various Forms of Stress, on the Serum Cholesterol Level. Results of an Experiment of 9 Months' Duration in 60 Normal Human Volunteers.
5. HENSCHEN, F. Pathogenesis of Arteriosclerosis in the Light of Food Restrictions in Scandinavia During the War.
6. POMERANZE, J. The Effect of Diet and Therapeutic Agents on Serum Lipid Tolerance in Relationship to Atherosclerosis.
7. REIS, J. A. d., JR. Cholesterol Arteriosclerosis in the Rabbit and Its Inhibition by Choline, Methionine, and Inositol.
8. POLLAK, O. J. Summary of Presented Papers.

Problem Identification.

READ BY TITLE:

9. LEV, M., and SULLIVAN, C. M. The Relationship of Aging Changes to the Development of Arteriosclerosis in the Human Aorta.
10. SMITH, J. W. H. Attempt to Induce Atherosclerosis in Aged Hamsters by Cholesterol Feeding.
11. HIRSCH, S. The Relation Between Experimental and Human Arteriosclerosis.

Thursday Morning, September 13

9:00 a. m. - 12:00 noon

(A) Aging of Connective Tissues—Jefferson Hotel, Gold Room

Chairmen: J. Gross
R. E. Tunbridge
J. Firket

1. LANSING, A. I. Chemical Morphology of Elastic Fibers.
2. GROSS, J. In Vitro Studies on Fibrogenesis of Certain Connective Tissue Constituents with the Electron Microscope.
3. FIRKET, J. Aging of Connective Tissue and Malignant Growth.
4. TUNBRIDGE, R. E., ASTBURY, W. T., REED, R., HALL, D. A., and TATTERSALL, R. N. The Effect of Aging in Elastin and Collagen Fibres. Structural and Chemical Studies.
5. PFEIFFER, H. H. On the Fibrogenesis in Connective Tissue Cultures Observed with Polarized Light.

Problem Identification.

(B) Biologic and Physiologic Aspects of Aging—Bishop Tuttle Memorial, Auditorium, Fourth Floor

Chairmen: N. W. Shock
S. M. Horvath
F. Bourlière

1. ZORZOLI, A. The Influence of Age on Mouse Liver Acid and Alkaline Phosphatases.
2. KAHN, R. L. The Universal Serologic Reaction in Aging.
3. MARSHAK, A. Nuclear Pentosenucleoprotein as the Basic Controlling Agent of Cellular Metabolism and Proliferation.
4. BOURLIERE, F. Growth and Aging Patterns in Snakes.
5. BROZEK, J., and KEYS, A. Age Changes in Body Composition During Maturity.
6. BINET, L. M., and BOURLIERE, F. Studies on the Aging of Skeletal Muscle.
7. MILLER, J. H., McDONALD, R. K., and SHOCK, N. W. Age Changes in the Maximal Rate of Renal Tubular Reabsorption of Glucose.
8. GRAD, B. Diurnal and Age Changes in the Sodium and Potassium Concentration in Human Mixed Saliva.

9. VANZETTI, G., MARS, G., and FORMIGA-ORAZI, G. Serum Glucoproteins in Old Age.
10. CHEVREMONT, M. Growth and Aging of Tissues and Organisms.

READ BY TITLE:

11. EULER, H. v. The Primary Causes and the Secondary Symptoms of Aging.
12. HEALY, R. W., and REICH, T. The Effect of Age on the Carbonic Anhydrase Activity of Bovine Lenses.
13. JOHNSEN, S. G. The Effect of Age on the Skin Lipid Secretion in the Dorsal Region of the Hand.
14. BOLSI, D. Physiopathologic Foundations of the Aging Process.

Thursday Afternoon, September 13
1:30 p. m. - 4:30 p. m.

(A) Panel Discussion: What Is Aging?—Jefferson Hotel, Gold Room

Chairmen: E. V. Cowdry
V. Korenchevsky

Participants: A. v. Albertini
L. Brull
O. W. Grob
A. I. Lansing
R. A. Moore
I. H. Page
N. W. Shock
H. S. Simms

(B) Urologic Problems of Old Age—Jefferson Hotel, Room 8

Chairmen: D. K. Rose
E. M. Barclay

1. ROSE, D. K. Geriatric Management of Prostatism.
2. CREEVY, C. D. Transurethral Resection of the Prostate.
3. PAQUIN, A. J., and MARSHALL, V. F. The Clinical Effect of Pituitary Adrenocorticotrophic Hormone in 3 Cases of Severe Chronic Interstitial Cystitis.
4. LICH, R., JR. Urinary Stress Incontinence in the Female.
5. HUFFMAN, J. W., and SOKOL, J. K. The Management of Stress Incontinence in Women.
6. NESBIT, R. M., and BAUM, W. C. Management of Decompensated Bladder in the Aged.
7. FLOCKS, R. H. The Treatment of Patients with Carcinoma of the Prostate.
8. THOMPSON, G. J. The Risk of Urologic Surgery in Men Past 80.

(C) Endocrinologic Aspects of Aging—Bishop Tuttle Memorial, Auditorium, Fourth Floor
(First Session)

Chairmen: M. Pañella-Casas
A. P. Thomson
A. A. Hellbaum

1. BLUMENTHAL, H. T. The Relation of Age to Thyrotropic, Parathyrotropic, and Adrenotropic Activity of the Human Anterior Hypophysis: The Resistance of These Hormones to Various Physical and Chemical Agents.
2. FREEMAN, H., ELMADJIAN, F., PINCUS, G., and ROMANOFF, L. P. Stress Response to the Administration of ACTH and to the Ingestion of Glucose as a Function of the Aging Process.
3. THOMSON, A. P. Response of the Aged to Stress.
4. THOMPSON, W. O. Gerontologic Applications of ACTH and Cortisone.
5. STARR, P. Thyroid Function and Disease in Aged Humans.
6. HASHINGER, E. H. Hypothyroidism in the Aged.

Friday Morning, September 14
9:00 a. m. - 12:00 noon

(A) Endocrinologic Aspects of Aging—Jefferson Hotel, Gold Room
(Second Session)

Chairmen: V. Korenchevsky
P. Starr
J. A. Huet

1. HUET, J. A. Action des Hormones Stéroïdes sur Différents Metabolismes de Gens Agés.
2. HOMBURGER, F., FISHMAN, W. H., BONNER, C. D., and DART, R. M. Quantitative Studies on Some Effects of Various Steroid Substances in Aged and Debilitated Individuals.
3. PANELLA-CASAS, M., and MONTEYS-PORTA, J. Endocrine Aspects of Senescence.
4. CORDONNIER, J. J. Effects of Administration of Testosterone Proprionate on the Testicles in the Senescent Male.
5. KORENCHEVSKY, V. I. Role of Deficiency of Sex Hormones in Processes of Aging in Man and Male Animals.
6. KORENCHEVSKY, V. II. Treatment of Senescence in Male Rats by Hormones and, as Suggested by These Experiments, the Components in Human Senility Syndrome Suitable for Hormonal Treatment.

Problem Identification.

(B) Psychiatric Aspects of Aging—Jefferson Hotel, Room 9
(First Session)

Chairmen: O. J. Kaplan
E. F. Gildea

1. GOTTLIEB, J. S., and MORRIS, L. E. Electric Convulsive Therapy with Complete Curarization.
2. ROBINSON, G. W., JR., and DEMOTT, J. D. Severe Functional Mental Disease in Extreme Old Age.
3. LUCE, R. A., JR., and ROTHSCHILD, D. The Correlation of Electroencephalographic and Clinical Findings in Psychiatric Patients Over 65.
4. KALLMANN, F. J. Comparative Twin Data on the Genetic Aspects of Mental Disorders in the Involutional and Senile Periods of Life.
5. STERN, K., WILLIAMS, G. M., and PRADOS, M. Grief Reactions in Later Life.
6. AFFLECK, J. A. Some Aspects of Mental Hygiene in Later Life.
7. HOPKINS, B., and POST, F. Abstract and Concrete Behaviour in Elderly Psychiatric Patients.

(C) Cellular Aging—Jefferson Hotel, Room 8

Chairman: A. I. Lansing

Panel: W. Andrew
M. Chevremont
S. M. Horvath
J. W. Wilson

1. LANSING, A. I. Intracellular Calcium in Aging.
2. KURTZ, S. M., and ANDREW, W. A Study of the Mitochondria in Relation to Age.

Problem Identification.

(D) Hypertension in Relation to Aging—Bishop Tuttle Memorial, Auditorium, Fourth Floor
(First Session)

Chairmen: A. Grollman
J. Reis
D. Contreras

1. DUGUID, J. B., and RANNIE, I. The Pathogenesis of Hypertensive Nephrosclerosis.
2. RATHER, L. J. Adrenal Cortical and Medullary Participation in Experimental Renal Hypertension.
3. ZWEIFACH, B. W. The Relation of the Adrenal Cortex to Peripheral Vascular Alterations During Hypertension.
4. BRAUN-MENENDEZ, E. Hypertension and the Relation Between Kidney Weight and Body Weight in the Rat.
5. GROLLMAN, A. The Relation of Arteriolarsclerosis to Hypertension as Elucidated by Studies on the Nephrectomized Dog.

6. SHORR, E. Histochemical Enzymatic Alterations Revealed by Tetrazolium in Hypertensive Kidneys from Man and Animals and Their Relation to Renal VEM Mechanisms.
7. HOLMAN, R. L. Necrotizing Arteritis in Dogs Related to Diet and Renal Insufficiency.
8. SZANTO, P. B., NELSON, D., IVY, A. C., and POPPER, H. Degenerative Alterations of Renal Vasculature in Humans and Experimental Animals.
9. DEXTER, L. The Significance of Blood Pressure Recorded by the Cuff Method.
10. MARS, G., SEIDENARI, R., and MORPURGO, M. Arteriosclerotic and Hypertensive Retinopathy Treated with Vitamin E.
11. DUNIHUE, F. W. The Source of Renal Vaso-Active Substances.

Friday Afternoon, September 14
1:30 p. m. - 4:30 p. m.

(A) Endocrinologic Aspects of Aging—Jefferson Hotel, Gold Room
(Third Session)

Chairmen: W. O. Thompson
S. S. Sokhey
E. T. Engle

1. HELLER, A. L., and SHIPLEY, R. A. Endocrine Studies in Aging.
2. PINCUS, G., ROMANOFF, L. P., and CARLO, J. Urinary Steroid Excretion in Relation to Age.
3. COMMONS, R. R. Androgens, Aging, and Disease.
4. HAMILTON, J. Quantitative Measurements in Humans of a Secondary Sex Character, Axillary Hair.
5. McGAVACK, T. H. The Trend of Endocrine Gland Changes in Aging Individuals.
6. VOTAW, R. E. The Effect of Steroids on the Nasal Mucosa of Elderly Individuals.
7. GOLDZIEHER, M. A., and GOLDZIEHER, J. W. The Male Climacteric and the Post-Climacteric State.

READ BY TITLE:

8. CHIEFFI, M. The Effect of Age on Beard Growth in Men.
9. SODERWALL, A. L., and ARMEN, G. K., JR. Comparison of Lengths of Behavioral Estrus Between Young and Older Female Hamsters (*Cricetus auratus*, Waterhouse).
10. TRUCCO, E., GAMBIN, M., CIRIO, J. D., and DEL CASTILLO, E. B. An Analysis of the Symptoms of Hyperthyroidism in Women After the Age of 50.

(B) Psychiatric Aspects of Aging—Jefferson Hotel, Room 9
(Second Session)

Chairmen: D. E. Cameron
F. J. Kallman
H. E. Clow

1. SCHUSTER, D. B. A Psychologic Study of a 106 Year Old Man. Contribution to Dynamic Concepts of Aging and Dementia.
2. DELAY, J., PICHOT, P., PAECH, J., and PERSE, J. The Therapeutic Action of Glutamic Acid in Involutional Psychoses.

Panel Discussion: Psychiatric Treatment of Gerontologic Problems.

READ BY TITLE:

3. SLEESWIJK, J. G. When Do the First Mental and Physical Symptoms of Old Age Appear?
4. KRAPF, E. E. Observaciones Sobre la Psicopatología de la Edad Avanzada.

(C) Hypertension in Relation to Aging—Bishop Tuttle Memorial, Auditorium, Fourth Floor
(Second Session)

Chairmen: W. S. Hartroft
E. Shorr
J. Quintero Quintero

1. HANDLER, P., and BERNHEIM, F. The Biochemical Basis for Renal Hypertension.
2. FRIEDMAN, S. M. Desoxycorticosterone Acetate (DCA) in the Experimental Study of the Etiology of Essential Hypertension.
3. HEROUX, O., and DUGAL, L. P. The Effect of Ascorbic Acid on Blood Pressure in Relation to the Adrenal Cortex.
4. ROSENMAN, R. H., FREED, S. C., and FRIEDMAN, M. The Depressor Effect of Potassium Deprivation in Normotensive and Hypertensive Rats.
5. SCHROEDER, H. A. Inactivation of Pressor Substances in Hypertension.
6. RAAB, W. The Role of Catecholamines, Corticoids, and Electrolytes in Hypertension.
7. DAVIES, D. F., and SCHROEDER, H. A. Qualitative and Quantitative Studies on Pherentasin, the Active Pressor Principles of Hypertension.
8. HELMER, O. M. The Nature of the Sustained Pressor Principle.

Panel Discussion: The Present Status of the Kidney in Hypertension.

READ BY TITLE:

9. MONFARDINI, R., and BARDELLI, S. Tibial Hypertension and Plethoric Conditions.

SECTION II: SOCIOLOGY, PSYCHOLOGY, EDUCATION, AND RELIGION

Director: R. J. Havighurst

Monday Morning, September 10
10:30 a. m. - 12:00 noon

(A) Aging as a Psychologic Process—Jefferson Hotel, Crystal Room
(First Session)
Chairmen: R. J. Havighurst
R. Posada

1. KLEEMEIER, R. W. The Role of Sensory and Motor Ability in the Measurement of Senescent Decline in Intelligence.
2. BIRREN, J. E., and BOTWINICK, J. Age Changes in Verbal Fluency.
3. BERGMAN, R. A. M. Anthropologic Studies in the Field of Gerontology.

Monday Afternoon, September 10
1:30 p. m. - 3:30 p. m.

(A) Aging as a Psychologic Process—Jefferson Hotel, Crystal Room
(Second Session)
Chairmen: J. Paulus
N. W. Shock

1. GROSSMAN, C., WARSHAWSKY, F., and HERTZ, M. Rorschach Studies of Personality Characteristics of a Group of Institutionalized Old People.
2. KUHLEN, R. G., and KEIL, C. The Rorschach Test Performance of 100 Elderly Males.
3. VISCHER, A. L. Sociologic, Psychologic, and Pathologic Observations in the Old Age Institution of Basel.
4. CHANDLER, A. R. Personal Traits of Older People as Judged by Their Juniors.
5. BRIELAND, D. M. Similarities and Differences in a Comparison of Adolescence and Old Age.

3:30 p. m. - 5:00 p. m.

(B) Organization of committees to report to the Section on most important and feasible research problems—Jefferson Hotel, Crystal Room

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Tuesday Morning, September 11
9:00 a. m. - 11:00 a. m.

(A) Personality Development in Later Maturity—Jefferson Hotel, Crystal Room
Chairmen: R. A. M. Bergman
I. Lorge

1. BLAKE, W. D. The Effect of Emotion on the Adult, as Indicated by the Pulse Rate.
2. CALDWELL, B. McD., WATSON, R. I., KOUNTZ, W. B., and MASTERS, W. H. An Evaluation of Sex Hormone Replacement in Aged Women.

3. KUHLEN, R. G. Expansion and Constriction of Life Activities During the Adult Life Span as Reflected in Organizational, Civic, and Political Participation.
4. WEINBERG, J. Ego-Defenses in Later Life: Some Clinical Observations.
5. GINZBERG, R. The Negative Attitude Towards the Elderly.
6. VAN DER HORST, L. The Psycho-Reactive Symptoms of Aging.
7. SCHAIE, K. W., ROSENTHAL, F., and PERLMAN, R. M. Differential Mental Deterioration in Later Maturity.

Tuesday Afternoon, September 11
1:30 p. m. - 4:30 p. m.

(A) Symposium: The Church and the Aged–Jefferson Hotel, Crystal Room

Chairmen: K. P. Meister
C. Matovu

1. TILDEN, P. L. Pastoral Counseling.
   Discussion Leader: Richard Caemmerer.
2. BILLER, N. The Place of the Synagogue.
   Discussion Leader: K. G. Herz.
3. MOTHER M. BERNADETTE DE LOURDES. The Place of the Church.
   Discussion Leader: J. DeV. Gilday
4. BOYD, B. M., The Role of the Church and the Synagogue in Work with Old People.
   Discussion Leader: W. M. Tisdale.

Wednesday Morning, September 12
9:00 a. m. - 12 noon

(A) Community Services and Planning for the Aged—Jefferson Hotel, Crystal Room
(First Session)

Joint Session with Section III
(See Page 40)

(B) Industrial Hygiene and the Aging—Bishop Tuttle Memorial, Room B, Fourth Floor

Joint Session with Section IV
(See Page 46)

(C) Meetings of committees on identification of most important and feasible research problems in this area. Preliminary reports formulated by these committees—Jefferson Hotel, Rooms 3, 4, 6, 7

Wednesday Afternoon, September 12
1:30 p. m. - 4:00 p. m.

(A) Group Activities and Recreation for Older People—Jefferson Hotel, Crystal Room

Chairmen: G. Bowen
L. B. McFadgen

1. LAUE, H. G. A Community Plans a Recreation Program for the Aged.
2. VICKERY, F. E. Group Work Activities with Emphasis on Club Programming.
3. LANDAU, G. Summer Camping for Older People.
4. TARRELL, P., and SHORE, H. The Application of Social Work Disciplines to Group Work Services in Homes for the Aged.

(B) Community Services and Planning for the Aged—Bishop Tuttle Memorial, Room B, Fourth Floor
(Second Session)
Joint Session with Section III
(See Page 41)

Thursday Morning, September 13
9:00 a. m. - 12:00 noon

(A) Education for Middle Age and Later Maturity—Jefferson Hotel, Crystal Room

Chairmen: M. S. Sundaram
P. Young

1. LITTLE, M. H. Content and Method of an Intensive Course in Preparation for Later Maturity.
2. BARRON, A. M. A Large City School Program for Older Adults.
3. RABE, H. F. Educational Program for the Older Adult in New York State.
4. DONAHUE, W. Experiments in the Education of Older Adults.
5. TAYLOR, C. C. Education for the Older Rural Adult.
6. GRIM, E. L. The Older Adult's Contribution to a Community Action Program.
7. REALS, W. H. The Place of the University in the Education of the Aging.

(B) Effective Employment Practices Related to the Older Worker—Bishop Tuttle Memorial, Room A, Third Floor
(First Session)

Joint Session with Sections III and IV and the University of Chicago Committee on the Study of Later Maturity
(See Page 42)

Thursday Afternoon, September 13
1:30 p. m. - 4:30 p. m.

(A) Effective Employment Practices Related to the Older Worker—Bishop Tuttle Memorial, Room A, Third Floor
(Second Session)

Joint Session with Sections III and IV and the University of Chicago Committee on the Study of Later Maturity
(See Page 43)

(B) Adjustment and Health in Later Maturity—Jefferson Hotel, Crystal Room

Chairmen: O. J. Kaplan
S. L. Pressey

1. SCHWARTZ, E. D., and GOODMAN, J. I. Group Therapy of Obesity in Elderly Diabetics.
2. KAPLAN, O. J. Factors Influencing the Health Behavior of Older Persons.
3. ALBRECHT, R. The Health of Older People in Relation to Social Factors.
4. BURSTEIN, S. R. Objectives and Techniques in the Psycho-Social Study of Old Age.
5. PAULUS, J. On the Philosophic Aspects of Aging: Some of the Conditions of a Happy Maturity and Old Age.
6. DUNBAR, FLANDERS, and DUNBAR, FRANCIS. The Syndrome of Longevity: A Psychosomatic Study of American Centenarians.
7. BOWEN, G. E. Something to Live For.

Friday Morning, September 14
9:00 a. m. - 12:00 noon

(A) Psychologic Aspects of Work and Retirement—Jefferson Hotel, Crystal Room

Chairmen: E. W. Burgess
J. Daric

1. TUCKMAN, J., and LORGE, I. Retirement Practices in Business and Industry.
2. LORGE, I., and TUCKMAN, J. Attitudes Towards Older Workers.
3. FRIEDMANN, E. Retirement and the Meaning of Work.
4. HARLAN, W. H. Attitudes Towards Work and Retirement: Southern Illinois Coal Miners.
5. PRESSEY, S. L., STANTON, J., and SMITH, M. W. Potentialities and Problems of Older Workers.

6. HUET, J. A. Organisation et Rentabilité d'un "Senat" dans une Usine Française de Fabrication d'Automobiles.
7. HAVIGHURST, R. J. Work and Play of Older People in a Midwestern Community.
8. BARRON, M. L. A Pilot Study of Old Age in Elmira, New York.

Friday Afternoon, September 14
1:30 p. m. - 3:00 p. m.

(A) Sociologic Studies of Old Age—Jefferson Hotel, Crystal Room

Chairmen: R. G. Kuhlen
W. H. Reals

1. WEBBER, I. L. The Retired Population of a Florida Community.
2. CUSHING, J. G. N. Problems of Retirement.
3. CAVAN, R. S. The Three-Generation Family.
4. KUTAK, R. I. Studies of Special Groups of Older People.
5. EATON, J. W., and PLAUT, T. Social Factors in the Adjustment of the Aged Among the Hutterites.

3:00 p. m. - 4:00 p. m.

(B) Reports of committees on identification and formulation of research Problems—Jefferson Hotel, Crystal Room

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SECTION III: ECONOMICS, EMPLOYMENT, AND WELFARE

Director: W. J. Cohen

Monday Morning, September 10
10:30 a. m. - 12:00 noon

(A) Population Trends and Policies—Bishop Tuttle Memorial, Auditorium, Fourth Floor

Chairmen: W. Thompson
J. V. Grauman

1. GRAUMAN, J. V. Some Quantitative Aspects of the Aging of Western Populations.
2. DARIC, J. La Vieillissement de la Population dans l'Europe de l'Ouest et son Effet sur la Population Active.

Monday Afternoon, September 10
1:30 p. m. - 4:30 p. m.

(A) Population Trends and the Labor Force—Bishop Tuttle Memorial, Auditorium, Fourth Floor

Chairmen: W. Thompson
Y. Koya

1. CLAGUE, E. Labor Force Trends in the United States.
2. KIRK, D. The Lengthening Span of Working Life: International Perspectives.
3. VINCENT, P. La Mortalité aux Grands Ages.
4. KOYA, Y. Gerontologic Concern in Reference to the Population Problem in Japan.

Tuesday Morning, September 11
9:00 a. m. - 12:00 noon

(A) Income Maintenance for the Aged: Developments and Problems—Bishop Tuttle Memorial, Room B, Fourth Floor

Chairmen: J. J. Corson
D. Ramsey

1. WITTE, E. E. What Is Needed for Economic Security in Old Age.
2. BALL, R. M. Retirement Plans Under Social Insurance and Collective Bargaining in the United States.
3. WINSTON, E. Developments in Assistance for the Aged and the Disabled.
4. WARREN, D. B. The Contribution of Private Insurance to the Security of the Aged.

(B) Disabilities Among Older People—Jefferson Hotel, Room 9
Joint Session with Section IV
(See Page 45)

Tuesday Afternoon, September 11
1:30 p. m. - 4:30 p. m.

(A) Incidence and Prevalence of Disability: Costs and Programs—Bishop Tuttle Memorial, Room A, Third Floor
Joint Session with Section IV

Chairmen: E. E. Witte
G.-A. Johansson

1. HILLIARD, R. M. The Cost of Chronic Illness.
2. GOLDMANN, F. Principles of an Effective and Economical Program of Medical Care for Elderly People.
3. COHEN, W. J. Income Maintenance for the Disabled.

Wednesday Morning, September 12
9:00 a. m. - 12:00 noon

(A) Rehabilitation for Employment—Bishop Tuttle Memorial, Room A, Third Floor
Joint Session with Section IV
(See Page 46)

(B) Community Services and Planning for the Aged—Jefferson Hotel, Crystal Room
(First Session)
Joint Session with Section II

Chairmen: F. K. Hoehler
E. Aguirre Pequeño

1. MATHIASEN, G. Patterns of Local Action for the Welfare of Older People in American Communities in Relation to Employment.
2. RAMSEY, D. The Contribution of the Voluntary Societies to the Welfare of the Elderly in the United Kingdom.

3. McCARTHY, H. Inter-Relationship of Public and Private Community Planning for the Aged.
4. SALAMONE, A. Establishing Retirement Programs Through Collateral Groups.

Wednesday Afternoon, September 12
1:30 p. m. - 4:00 p. m.

(A) Industry, Labor, and the Community Look at Retirement—Bishop Tuttle Memorial, Room A, Third Floor

Joint Session with Section IV

(See Page 47)

(B) Community Service and Planning for the Aged—Bishop Tuttle Memorial, Room B, Fourth Floor
(Second Session)

Joint Session with Section II

Chairmen: R. M. Hilliard
N. Vinther-Paulsen

1. GOOD, J. Organized Community Planning for Older People in Canada.
2. YOUNG, P. The Human Aspect of Gerontology: What Women's Voluntary Services Are Doing in Great Britain.
3. SWARTZ, P. W. Organized Community Planning for Old Age.
4. RAMSEY, D. The Work of the National Old People's Welfare Committee in Great Britain.

(C) Economic and Social Problems of an Aging Population—Jefferson Hotel, Room 8

Chairmen: C. Tibbitts
J. W. McConnell

1. McKAIN, W. C., JR. Retirement and the Rural Community.
2. McCONNELL, J. W. The Adjustment of Retired Workers in Industrial Communities.
3. DARIC, J. Quelques Problèmes Economiques Posés par le Vieillissement de la Population.
4. SCOTT, W. G. Counselling Older Applicants for Employment.
5. ODELL, C. E. Employment Problems of Older Workers in the United States.
6. FALK, I. S., and HESS, A. Health Status and Health Service Needs of Old-Age and Survivors Insurance Beneficiaries.

(D) Employment and Retirement—Jefferson Hotel, Room 7

Chairmen: J. M. Becker
G. Mathiasen

1. FRANCO, S. C. Why Retire Skills and Experience at Age 65?
2. HENEMAN, H. G., JR. Employability and Aging.
3. ABRAMS, A. J. Discrimination in Employment of Older Workers in Various Countries of the World.
4. KIEHEL, C. A. Adequacy and the Origin of Old Age Security.
5. BARKIN, S. Jobs and the Older Worker.
6. HUET, J. A. Orientation Professionnelle des Travailleurs Agés.

4:00 p. m. - 5:00 p. m.

(E) Informal Discussion of an International Program for Welfare of the Aged—Jefferson Hotel, Room 4

Discussion Leader: D. Kahn

Thursday Morning, September 13
9:00 a. m. - 12:00 noon

(A) Effective Employment Practices Related to the Older Worker— Bishop Tuttle Memorial, Room A, Third Floor
(First Session)

Joint Session with Sections II, IV, and the University of Chicago Committee on the Study of Later Maturity

Chairmen: R. C. Goodwin
R. J. Havighurst

Discussion of the following:

1. Hiring the Older Worker
2. Evaluating the Older Worker's Performance
3. Testing Fitness for Work
4. Shifting the Older Worker to Other Jobs (full time and part time)
5. Preparing for Retirement (counselling the individual)
6. Preparing for Retirement

(B) Planning for the Aged in Various Countries of the World—Bishop Tuttle Memorial, Room B, Fourth Floor
(First Session)

Chairmen: T. Haarloev
M. Abrams

1. METALL, R. A. Recent Trends in Old Age Security Plans.
2. WILLARD, J. W. Planning for the Aged in Canada.

3. CHAVERO, A. Planning for the Aged in Mexico.
4. QUINTERO QUINTERO, J. First Geriatric Activities in Venezuela.

READ BY TITLE:

5. SLEESWIJK, J. G. The Social Consequences of Aging in the Netherlands.

Thursday Afternoon, September 13
1:30 p. m. - 4:30 p. m.

(A) Effective Employment Practices Related to the Older Worker—Bishop Tuttle Memorial, Room A, Third Floor
(Second Session)

Joint Session with Sections II, IV, and the Committee on the Study of Later Maturity of the University of Chicago

Chairmen: R. C. Goodwin
R. J. Havighurst

1. BRECKINRIDGE, E. Employment and Retirement Patterns for Older Workers.

Discussion of the following:

1. Presentation of Survey Findings
2. Hiring the Older Worker
3. Downgrading and Transmotion
4. Evaluation and Testing
5. Selective Retirement

(B) Planning for the Aged in Various Countries of the World—Bishop Tuttle Memorial, Room B, Fourth Floor
(Second Session)

Chairmen: A. Chavero
O. W. Frewin

1. KAHN, D. C. An International Program for the Welfare of the Aged.
2. ABRAMS, M. Social Contacts and Dependency of Old People.
3. HAARLOEV, T. Planning for the Aged in Denmark.
4. TUNBRIDGE, R. E. Planning for the Aged in Great Britain.

Friday Morning, September 14
9:00 a. m. - 12:00 noon

(A) The Interrelationships Between Different Fields of Gerontology—Bishop Tuttle Memorial, Room A, Third Floor

Discussion with Audience Participation

Joint Session with Section IV

Moderator: F. Fremont-Smith

The Integration of the Sciences Basic to Gerontology

SECTION IV: MEDICAL SERVICES, HYGIENE, AND HOUSING

Director: J. W. Mountin

Monday Morning, September 10
10:30 a. m. - 12:00 noon

(A) Personal Problems of the Aging—Bishop Tuttle Memorial, Room A, Third Floor

Chairmen: W. Malamud
P. L. Dugal

1. GUMPERT, M. Personality Problems: Pioneers of Aging.
2. THEWLIS, M. W. Geriatrics: General Considerations.
3. CRAMPTON, C. W. Whole Life Records, Research, and Service in Geriatrics and Gerontology.

Monday Afternoon, September 10
1:30 p. m. - 4:30 p. m.

(A) Medical and Social Problems of the Aging—Bishop Tuttle Memorial, Room A, Third Floor

Chairmen: E. L. Bortz
K. H. Backer

1. BORTZ, E. L. Enlarging Biologic Patterns.
2. McCAY, C. M. The Paradox of Poorly Fed Old People in a Rich Nation.
3. MALAMUD, W. Personal Problems in Mental Health.
4. TUNBRIDGE, R. E., and WARREN, E. C. The Medical and Social Problems of an Aging Population.

4:30 p. m. - 6:00 p. m.

(B) Section Meeting to Consider Procedures for Formulating Section Report—Bishop Tuttle Memorial, Room A, Third Floor

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Tuesday Morning, September 11
9:00 a. m. - 12:00 noon

(A) The Practice of Geriatrics—Bishop Tuttle Memorial, Room A, Third Floor

Chairmen: E. M. Bluestone
M. Warren

1. WARREN, M. W. A. Geriatric Unit in a General Hospital—England.
2. FREEMAN, J. T. The Philadelphia Story on Geriatrics.
3. BORTZ, E. L. Nutritional Deficiencies and Premature Aging.
4. THOMPSON, J. D. Integration of the Geriatrics Program in the General Hospital.
5. LITTAUER, D. Care of the Long Term Patient at the Voluntary General Hospital.

(B) Disabilities Among Older People—Jefferson Hotel, Room 9
Joint Session with Section III

Chairman: G. St. J. Perrott

1. PERROTT, G. ST. J. and GOLDSTEIN, M. Disability and Population Trends.
2. CIOCCO, A., and LAWRENCE, P. Illness Among Older People in Hagerstown, Maryland.
3. BAEHR, G., and DEARDORFF, N. R. Experience of Health Insurance Plan of Greater New York with Older Persons.
4. MOTT, F. D., ROSENFELD, L. S., and TAYLOR, M. Health Services for the Aging in Saskatchewan.

(C) Institutional Care of the Aged—Jefferson Hotel, Room 7

Chairmen: L. E. Burney
D. Contreras

1. FERDERBER, M. B., KRAFT, A. C., and HAMMILL, G. P. Physical Restoration of the Chronically Ill and Aged.
2. PEARSON, A. M. The Private Nursing Home of Yesterday, Today, and Tomorrow.
3. BURNEY, L. E. Problems of Inspection and Licensing of Private Nursing Homes and County Homes.
4. ZEMAN, F. D. Institutional Care of the Aged.
5. FRAME, M. R. Over-All View of Nursing Home Standards.

Tuesday Afternoon, September 11
1:30 p. m. - 4:30 p. m.

(A) Incidence and Prevalence of Disability: Costs and Programs—
Bishop Tuttle Memorial, Room A, Third Floor

Joint Session with Section III
(See Page 40)

(B) The Teamwork Approach to the Care of the Patient in His Home—
Bishop Tuttle Memorial, Room B, Fourth Floor

Chairmen: H. E. Kinney
E. C. Warren

1. UDELL, L. Experiences in Intensive Home Care of the Chronically Ill Geriatric Patient.
2. KINNEY, H. E. The Public Health Nurse.
3. FILSON, M. The Hospital Nurse.
4. BAKER, A. L. The Medical Social Worker.
5. TORROP, H. M. A Nursing Service for the Aged and Aging.
6. NEWTON, K. Geriatric Nursing.

(C) Health Services for the Aging—Jefferson Hotel, Room 8

Chairmen: C. R. Rorem
M. L. Levin

1. ROREM, C. R. Financing Health Services.
2. WARREN, M. W. Voluntary Services for the Elderly in Great Britain.
3. COSIN, L. Z. Organization of a Geriatric Hospital Unit with Statistical Analysis of Geriatric Rehabilitation.
4. GRANT, D. N. W. The American Red Cross and the Aging.
5. CONTRERAS, D. La Vejez en la República Dominicana.

(D) The Geriatric Patient in Modern Society—Jefferson Hotel, Room 7

Chairmen: A. P. Merrill
L. K. Frank

1. MERRILL, A. P. Hospital and Institutional Care of the Geriatric Patient.
2. SUTTENFIELD, F. D. The Necessity for Multiple Diagnoses in Geriatric Medicine—Review of 100 Diagnostic Surveys in Private Practice.
3. WILSON, J. L. Geriatric Experiences with the Negro Aged.
4. FRIEDMAN, S. L. Role of the Acute General Hospital in the Care of the Aged.

Wednesday Morning, September 12
9:00 a. m. - 12:00 noon

(A) Rehabilitation for Employment—Bishop Tuttle Memorial, Room A, Third Floor

Joint Session with Section III

Chairman: K. Pohlmann

1. AITKIN, A. P. The Medical Aspects of Rehabilitation.
2. NELSON, G. Workmen's Compensation as an Aspect of Rehabilitation.
3. PARKS, G. Vocational Adjustment and Retraining.
4. HAYS, H. Problems of Selective Placement.

(B) Industrial Hygiene and the Aging—Bishop Tuttle Memorial, Room B, Fourth Floor

Joint Session with Section II

Chairmen: R. Hussey
S. E. Miller

1. HUSSEY, R. Aging, Health, and Employment.
2. CRAIN, R. B. Management of the Older Employee with Medical Problems.

3. KAMMER, A. G. Optional Retirement Plans—Their Implications for the Industrial Physician.
4. MURRAY, I. M. Assessment of Physiologic Age by a Combination of Several Criteria: Vision, Hearing, Blood Pressure, and Muscle Force.
5. LEWIS, W. H., JR. Quantitative Measurements of Longevity and Aging.
6. DEVLIN, W. The Industrial Nurse and the Older Worker.
7. FRANCO, S. C. Industrial Medical Aspects of Aging.

Wednesday Afternoon, September 12
1:30 p. m. - 4:00 p. m.

(A) Industry, Labor, and the Community Look at the Older Worker—Bishop Tuttle Memorial, Room A, Third Floor
Joint Session with Section III

Chairmen: T. G. Klumpp
V. Waravdekar

1. BECKER, H. Retirement.
2. DOWD, G. C. Senescent Defense Manpower: Its Medical and Socio-Economic Implications.
3. BRECKINRIDGE, E. The Community and Employment.
4. KLUMPP, T. G. Industry Looks at the Older Worker.

4:30 p. m. - 6:00 p. m.

(B Section Meeting to Consider Preliminary Report—Bishop Tuttle Memorial, Room A, Third Floor

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Thursday Morning, September 13
9:00 a. m. - 12:00 noon

(A) Effective Employment Practices Related to the Older Worker—Bishop Tuttle Memorial, Room A, Third Floor
(First Session)
Joint Session with Sections II and III and the University of Chicago Committee on the Study of Later Maturity
(See Page 42)

(B) Housing for the Aged—Jefferson Hotel, Room 9

Chairmen: S. L. Stolte
R. Wibaux

1. JOHNSON, R. J. Health Standards of Housing for the Aged.
2. GROSSMAN, B. L. Older People Live in Institutions.
3. LOEWENBERG, I. S. Architectural Aspects of Housing for the Aged.
4. ROSENFELD, E. D. Hospital Construction Problems in Relation to the Aged Patient.

5. SILK, L. S. Housing Characteristics of the Aging in the United States.
6. WIBAUX, R. Housing Problems and Aged People.

(C) Safety in Living—Jefferson Hotel, Room 8

Chairmen: L. M. Board
D. Kahn

1. FANSLER, T. Accidents Are a Problem of the Aged.
2. KING, B. Physical Characteristics, Tolerances, and Susceptibility to Accidents.
3. COLE, W. G. The Environmental Aspects of Accident Causation.
4. MELTZER, H. Psychiatric and Psychologic Factors in Accident Susceptibility in the Aged.

(D) Designs for Living—Jefferson Hotel, Room 7

Chairman: O. A. Randall

1. RANDALL, O. A. Special Designs for Living for Older People.
2. LEBER, C. An Analysis of the Residents of Toronto's Lambert Lodge.
3. VANN, S. H. Problems in Employment as Related to the Psychology of Aging.
4. McFADGEN, L. B. An Analysis of 400 Pending Admissions to Lambert Lodge, a Home for the Aged, Operated by the City of Toronto.
5. WEIL, J. Life in the Home for Older Persons.

Thursday Afternoon, September 13
1:30 p. m. - 4:30 p. m.

(A) Effective Employment Practices Related to the Older Worker—Bishop Tuttle Memorial, Room A, Third Floor
(Second Session)

Joint Session with Sections II and III and the University of Chicago Committee on the Study of Later Maturity
(See Page 43)

(B) Housing and Living Arrangements—Jefferson Hotel, Room 9

Chairman: B. Marquette

1. WARREN, M. W. Planned Housing for the Aged (England).
2. ABRAMS, A. J. Trends in Housing the Aged in Various Countries of the World.
3. MARQUETTE, B. Exploring the Housing Needs of the Aging.
4. FANSLER, T. The Epidemiology of Accidents to the Aged.

4:30 p. m. - 6:00 p. m.

(C) Section Meeting to Adopt Final Report—Bishop Tuttle Memorial, Room A, Third Floor

Friday Morning, September 14
9:00 a. m. - 12 noon

(A) The Inter-relationships Between the Different Fields of Gerontology—
Bishop Tuttle Memorial, Room A, Third Floor
Discussion with Audience Participation
Joint Session with Section III
Moderator: F. Fremont-Smith
The Integration of the Sciences Basic to Gerontology.

Friday Afternoon, September 14
1:30 p. m. - 3:30 p. m.

(B) Yesterday, Today, and Tomorrow in an Aging World–Jefferson Hotel, Room 8

Chairmen: S. R. Burstein
P. Mori-Chavez
J. B. Duguid

1. AGUIRRE PEQUENO, E. La Gerontología y la Geriatría Como una Necesidad Social en el Instituto Mexicano del Seguro Social (I. M. S. S.) e Instituciones Afines en Latino America.
2. GINZBERG, R. Gerontologic Heritage—A Study of Past Influences on Contemporary Medical Conceptions.
3. BELT, E. Leonardo da Vinci's Studies of the Aging Process.
4. VEST, W. E. William Shakespeare, Gerontologist.
5. BOYD, B. M. Historical Aspects of the Religious and Fraternal Organizations in the Care of the Aged.

Program Of Motion Pictures For The Second International Gerontological Congress

Jefferson Hotel, Room 3

Time	*Title of Film*	*Running Time (Minutes)*	*Source*	*Discusser*
Sunday September 9 4:00 p. m. - 5:00 p. m.	(a) Life With Grandpa	17	March of Time Forum Films, 369 Lexington Ave., N. Y.	E. W. Burgess
	(b) The Steps of Age	25	National Association for Mental Health, 1790 Broadway, New York, New York	
Monday September 10 4:00 p. m. - 5:00 p. m.	(a) Cancer of the Breast—Early Diagnosis	35	Cancer Society	C. Eckert
	(b) Self Examination of the Breast	15½	Cancer Society	
Tuesday September 11 4:00 p. m. - 5:00 p. m.	The Rehabilitation of the Hemiplegic Patient			
	(a) Exercises	30		M. Warren
	(b) Patient Under Treatment	30		S. Mead
Wednesday September 12 1:30 p. m.	(a) Sculptural Anatomy and Surgery of Facial Senescence	25		A. M. Brown
2:30 p. m.	(b) Effect of Combined Drug Therapy in Parkinson's Disease	25		G. M. Tanaka and J. C. Edwards
3:00 p. m.	(c) The Problems of Rheumatoid Arthritis	42	Medical Film Guild	P. O. Hagemann
4:00 p. m. - 5:00 p. m.	(d) Thromboembolism	25	Medical Film Institute	P. D. White
	(e) Thrombosis and Embolism	17		D. Ruhe
Thursday September 13	OPEN DATE			
Friday September 14 3:00 p. m. - 4:00 p. m.	(a) Physiology of Menstruation	30	Schering Corp., 2 Broad St., Bloomfield, New Jersey	W. Masters
	(b) Story of Menstruation (Disney)	7	American Medical Association	

Abstracts *of* Scientific Papers

*(*Abstract not received at the time the program went to press.)*

A

Discrimination in Employment of Older Workers in Various Countries of the World.

A. J. ABRAMS, *New York State Joint Legislative Committee on Problems of the Aged, 94 Broadway, Newburgh, New York.*

Discrimination against older job seekers is worldwide according to a survey of 59 countries. Discrimination tends to vary in intensity according to status of the labor market, type of economy, cultural factors, life span, rather than with presence or absence of pension plans, workmen's compensation or group insurance plans.

A country-by-country report is presented, with emphasis given to Belgium's move to reduce retirement age to take oldsters out of labor market, Iraq's work permits for elderly aimed at controlling entry into labor force, Italian labor union's drive against oldsters to aid young people seeking jobs.

Attention is focused on Holland's joint government - union - employer propaganda campaign for wide job opportunities for oldsters, England's pension bonus for continuation at work past normal retirement age, French laws which make firing the elderly subject to governmental control, state laws in the United States of America which have futilely attempted to ban discrimination against the older worker.

A wide variety of research projects are urgently needed ranging from inter-disciplinary studies of attitudes of employers, foremen, communities and oldsters, to role of older worker in an economy geared to low unit costs. Adaptability of industry to part-time work needs of oldsters, on-the-job adjustment problems of older workers, criteria for judging retraining suitability of older workers, desirability of flexible social security policy to adjust number in labor force—these are some of the necessary research projects.

An educational campaign beamed at industry, unions, government agencies, local communities, as well as older and younger workers is called for.

Trends in Housing the Aged in Various Countries of the World.

A. J. ABRAMS, *New York State Joint Legislative Committee on Problems of the Aged, 94 Broadway, Newburgh, New York.*

The world little knows how its aged live, nor apparently little cares. Data on housing needs of the aged are unavailable in most parts of the world. The impact of varying cultural-economic factors on housing the aged is outlined.

Fifty-seven of 68 countries reporting have old age homes. These serve from less than 1 per cent to 8 per cent of the aged in countries where statistics are available. A ten-point indictment of old age home practices in various parts of the world is made. Indigent aged are still dumped into "poor houses" in many nations. Homes often quench the spark of human spirit rather than fan it. New trends of old age homes to meet charge of obsolescence are highlighted, in country-by-country survey in which special mention is made of Australian cottage settlements adjacent to homes, Swedish old people's homes, drastic changes in English old age homes, and new services to resident and non-resident guests of homes in the United States.

Two general types of non-institutional housing being provided in various countries are discussed: (1) those set aside for aged in projects consisting of flats or cottages for all age groups; (2) those flats and cottages provided in projects set up solely for the aged. The danger of piece-meal planning for special groups, segregation of housing facilities by age of tenants, of drastic shifts in place and type of living arrangements in later years are discussed. The need for emphasizing self-sufficiency, privacy, and activity in non-institutional housing is outlined.

Social Contacts and Dependence of Old People.*

M. ABRAMS, *Research Services Ltd., 110 St. Martin's Lane, W. C. 2, London, England.*

Calcium and Phosphorus Balance Studies in Elderly Individuals.

P. G. ACKERMANN, *Division of Gerontology, Washington University School of Medicine, and St. Louis City Infirmary Hospital, St. Louis, Missouri.*

The intake and the urinary and fecal excretion of calcium and phosphorus were determined for a number of elderly individuals of both sexes. The calcium and phosphorus balances were computed for the subjects for periods up to several months in length.

The effect on the excretion and balance was noted for cortisone administration, thyroid administration, and changes in the calcium, phosphorus, and protein intake. Special studies were made on subjects found to have highly abnormal calcium balances. The results of these investigations will be reported with an estimate of the calcium and phosphorus requirements in the aged.

Comparative Studies on Coronary Atherosclerosis in Young and Old Age.

D. ADLERSBERG, F. G. ZAK, *and* M. HELPERN, *The Mount Sinai Hospital and the Office of the Chief Medical Examiner, New York, New York.*

A group of 50 persons below the age of 46 who died of coronary artery occlusion was compared with a group of 50 individuals 60 years old and over with the same cause of death. The younger group was characterized by striking familial occurrence of heart disease, a greater preponderance of males, and a greater incidence of obesity among the female, a high incidence of heavy smokers among the men, a significantly lower incidence of hypertension and diabetes (one-fourth to one-third of that found in the older group), and higher levels of serum cholesterol (348 mg. per 100 ml. versus 275 mg.).

The microscopic differences of the coronary arteries were less impressive, making it impossible to separate morphologically the two age groups. The youngest patient (a 27 year old male) had a stenosing coronary process with an acute arteritis.

In an additional group of 25 young persons who died suddenly and were autopsied at the office of the Chief Medical Examiner of New York City a considerable number showed inflammatory lesions in the coronary arteries identical with those described as stenosing coronary arteritis. Clinical data and photomicrographs of the lesions will be presented.

Some Aspects of Mental Hygiene in Later Life.

J. A. AFFLECK, *Regional Hospital Board, Harrogate, York, England.*

Individual mental hygiene: Sheldon's observations on the increasing occurrence of weakness, giddiness, fear of falling, and loss of confidence after the age of 70 and the conception of these as symptoms of true old age as opposed to the effects of disorders and degenerations which are common with earlier age groups, indicate that efforts to prescribe measures of mental hygiene analogous with physical hygiene will produce inevitable disappointment. The later stage of childish dependency and increasing apathy for the present is also inevitable if the individual lives long enough.

What advice then can be given when our patients ask regarding measures to prevent mental deterioration in later life and the avoidance of old age as a period of increasing frustration? The individual seeking general advice will be told that he must face and investigate the facts concerning retirement, social valuation in his community of the oldest generation, the possibility of loneliness and of increasing immobilization, and make economic, social, and mental preparation for them. The patients will be given advice on the effect of these circumstances on one of his temperament, outlook, experiences, and conflicts, perhaps with the reassurance of repeated reviews of the situation and such superficial personal analyses as may be appropriate for the reduction of anxiety. His physician will probably regard religious, philosophic, and other cultural agencies as most important supports in the maintenance of positive mental health.

Suicidal crisis in pensioners: The study of suicidal attempts serves to demonstrate the predisposing and precipitating factors producing states of frustration and depression in the aged. It can be assumed that similar circumstances are occurring in many more persons whose personality traits and ideals are not conducive to this type of reaction. The factors leading to suicidal attempts and the mechanisms behind the reaction are clearly different in the different age groups.

Psychosomatic disorders in the aged: From Halliday's conception of psycho-social medicine one would anticipate that psychosomatic disorders would be endemic among the aged. The team approach to the geriatric hospital case, involved in the use of the social worker, is of great advantage. The physician will have in mind the fact that manipulation of the environment is a strong therapeutic weapon.

Community mental hygiene: What can the authorities do to reduce the adverse factors in

geriatric illness? Various types of residential accommodation for sick and non-sick will be provided. It is essential that the person remains or becomes one of a group. Facilities for group activities must be provided. The provisions of retirement pensions and an accessible general medical service are items of major importance in the alleviation of anxiety.

La Gerontología y la Geriatría Como una Necesidad Social en el Instituto Mexicano del Seguro Social (I.M.S.S.) e Instituciones Afines de Latino América.

E. AGUIRRE PEQUENO, *Universidad de Nuevo León, Monterrey, N. L., México.*

Consultados: códigos, reglamentos, estadísticas y leyes del Instituto Mexicana del Seguro Social (I.M.S.S.) e Instituciones afines en Latino América, como Argentina, Colombia, y algunos otros países hermanos, se señala la urgente necesidad que justifica además de los servicios médicos clásicos bien conocidos, la creación de Unidades de Medicina Geriátrica en la consulta externa y del servicio especializado de "Medicina Geriátrica clínica", o simplemente llamado "Medicina Geriátrica," en los hospitales.

Se sugiere la conveniencia de aprovechar los servicios de personal idóneo en estudios de Gerontología y Geriatría, de médicos psiquiatras, psicoterapeutas, psicoanalistas, expertos en la prescripción de la terapia ocupacional, antropólogos, sociólogos, educadores, enfermeras especializadas en práctica geriátrica y trabajadoras sociales, los que en conjunto podrían realizar una verdadera labor social médica.

Centros consistentes en unidades, salas, pabellones, secciones, departamentos, etc., dedicados al desarrollo de estas actividades gerontológicas y geriátricas, por una parte formentarían en la clase médica, las potencialidades y aplicaciones de estas disciplinas y por la otra, la más fecunda, por ser la piedra angular de la protección de la salud, se ocuparían de la educación y divulgación higiénica del adulto, a fin de prevenirle de una vejez achacosa.

The Medical Aspects of Rehabilitation.*

A. P. AITKIN, *520 Commonwealth Avenue, Boston 15, Massachusetts.*

Protein Requirements of Old Age.

A. A. ALBANESE *and* R. A. HIGGONS, *Nutritional Research Laboratory, St. Luke's Hospital, New York, New York.*

The dietary needs of 97 normal old men and women (60 to 93 years) have been studied by several measurements of their nitrogen metabolism, blood protein levels, and basal metabolic rates. From these determinations it appears that the caloric and protein needs of this age group are approximately 30 per cent lower than those recommended for adults by the Food and Nutrition Board of the National Research Council. Contrary to expectations, this low plane of nutrition supports normal blood hemogoblin and total plasma protein levels. Also, no significant differences could be detected in the electrophoretic patterns of the blood serum of individuals of this age and that of younger adults (20 to 40 years).

Consideration of various measures of the rate of protein metabolism indicate that physiologic age rather than chronologic age is the controlling factor. Unlike chronologic age, physiologic age cannot be expressed in terms of any numerical scale but represents an amorphous summation of the nutritional history of the individual. The importance and influence of these factors in the determination of nutrient, and especially protein, requirements of old age will be discussed.

Arteriosclerosis and Age in Terms of Human Pathology.

A. V. ALBERTINI, *10 Schmelzbergstrasse, Zürich, Switzerland.*

The presentation represents an attempt to clarify the significance of aging for the pathogenesis of arteriosclerosis, based on a survey of investigations (clinical and experimental) into the pathogenesis and etiology of the disease.

Crucial questions, of interest to the gerontologist, that arise are: (1) is arteriosclerosis pre-eminently a disease of the older age groups? (2) if not, does aging play a role in the pathogenesis of the disease?

Etiologic and pathogenetic factors have been grouped into a diagram as follows:

1. Metabolic group (including metabolic diseases).
2. Group of primary degenerative processes in the arterial wall.
3. Group of primary inflammatory processes in the arterial wall.

The three groups overlap, in accordance with a possible combined action of individual factors.

The poly-etiology and poly-pathogenesis of the diseases commonly grouped under the general term arteriosclerosis furnish a reply to our first question. Arteriosclerosis is not specifically a disease of the older age groups.

The question arises of whether definite physicochemical processes in the tissues (such as the so-called mucoid degeneration of the intima or degenerative processes in smooth muscles and elastic

fibers) are due to aging factors alone (fatigue or wear).

Arteriosclerosis, under the influence of either one of the factors listed above, becomes manifest at late stages. Age can only be considered a predisposing factor of indirect importance. The decisive factor is not the age of the individual but the duration of the basic disease which finally leads to the development of arteriosclerosis.

Clinical considerations lead to even greater scepticism concerning the part played by age in the causation of arteriosclerosis. In this connection hypertension, media-sclerosis, (Mönckeberg), and post-arteritic forms of arterial stenosis should be mentioned.

These forms are representatives of the three groups of our diagram, but not one bears direct relation to the action of age factors.

Age stands in no direct relation to the most severe clinical forms of arteriosclerosis. On the other hand, so-called genuine arteriosclerosis (which is practically obligatory in old age) is clinically of minimal importance.

Cancer and Age: Gerontologic Aspects of the Problem of Cancer.

A. v. ALBERTINI, *10 Schmelzbergstrasse, Zürich, Switzerland.*

It is generally admitted that cancer is preeminently a disease of the older age groups, and the notion of "cancer age" is well established in medical nomenclature. The statement that liability increases with advancing years remains undisputed. Perhaps age must even be considered the most important factor promoting the spontaneous development of cancer. With the exception of the sarcomas, the incidence in young people remains low, unless some other predisposing factor such as xeroderma pigmentosum be operating.

The problem of whether age bears a causal relation to cancer will be discussed on the basis of the author's conception of the development of the disease. The process of growth of cancer tissue can be divided into two phases:

(1) A de-differentiation phase (loss of typical cell form and of cell differentiation) which is the expression of a carcinogen agent on the sensitive cell, and (2) a proliferation phase, characterized by an increase of proliferation potency resulting from altered growth mechanisms of the affected cell (presumably dependent on hormonal action).

Concerning the question of how and when age may be considered an operating factor in the causation of cancer it can be stated that age is a positive factor in phase 1 and a negative factor in phase 2.

Phase 1 predominates in pre-cancerous states, (keratoma senile, cornu cutaneum). The vast majority of pre-cancerous states are caused by the action of age factors. It is possible that the aging cell undergoes changes facilitating cancerization, in which case aging would bar a causal relationship to cancer.

With regard to phase 2, proliferation potency, as is to be expected, decreases in aging organisms, and as a result it may be presumed that cancer runs a milder course in old age. Two well-known observations tend to demonstrate this: (1) the occurrence of old age carcinoma, i.e., skin carcinoma running a slow and benign course, and (2) the decrease in malignancy of cancer with increasing age (contested).

It is evident that the problem deserves intensive investigation. Statistical evidence should be collected whenever possible.

It can be concluded that a predisposition to cancer is present in old age. This cancer promoting factor, however, becomes active before the onset of the senium proper. It is likely that this predisposing factor is related to certain alterations in the aging cell, which would prove the probable existence of a *causal relationship* between cancer and old age.

The Health of Older People in Relation to Social Factors.

R. ALBRECHT, *Committee on Human Development, University of Chicago, Chicago 37, Illinois.*

Problem: To investigate the number of defects and health-handicaps reported by elderly people, to ascertain the severity of these handicaps, and to learn how both incidence and severity vary by sex, marital status, social status, and age.

Subjects used: A proportional stratified sample of 100 old people over 65 representing a midwestern community population of old people by sex, marital status, age, and social status distribution.

Procedure: A health-handicap scale was constructed to measure both the incidence and severity of sensory, motor, and organic problems. This yielded a single score for each individual and was correlated with age, activities, personality, adjustment, and other factors.

Information was obtained from the subjects, from persons responsible for the subjects, and by observation. Whenever possible health information was reviewed by a physician.

Results: Handicap score values had a range of 0 to 14. Age was definitely related to increased handicap scores. Women reported more problems

than men except in the over 80 age-grade. Widowed people and those in the lower socio-economic status groups showed least favorable scores. Significant correlations were found between handicaps, personality, and adjustment scores.

The Diet in Old Age.

P. ALESSANDRINI, *Via Alberico II, 33, Rome, Italy.*

An important principle in the dietary regimen for old individuals is a moderation in the caloric intake. A low caloric intake is of importance for avoiding overweight. The reduction must, however, be accomplished without producing dietary insufficiencies.

Since one of the principal causes of senescence according to the general contention is an intoxication with substances like histamine and tyramine, a liberal intake of substances rich in ascorbic acid is recommended, since ascorbic acid possesses the ability of breaking down the imidazol ring.

In order to facilitate the elimination of toxic substances a liberal intake of water is also advisable provided the condition of the heart and the kidney does not constitute a contraindication against such measure. It is therefore generally recommended to supply a great quantity of fruit, which contains up to 90 per cent of water. A limitation of the sodium intake is not necessary unless edema is present.

A reduction in the intake of lipids, particularly cholesterol, is of importance because of the harmful effect of these substances on the arterial wall. The complete elimination of fats from the diet is, however, not advisable. A moderate quantity of alcoholic beverages (especially wine) is permitted, but the personality of the patient has to be considered in each case. Vegetables are of value in the diet by counteracting constipation because of their peristaltic action on the bowel.

In patients suffering from hypertension or arteriosclerosis it is necessary to reduce the amount of fat, and particularly of cholesterol, in the diet. The intake of sodium chloride should be minimal; it is always advisable to initiate the treatment with a short period of therapy with Kempner's diet.

The treatment of diabetes in old individuals does not always necessitate the administration of insulin or strict reduction of carbohydrates in the diet; often a restriction of the total food intake is sufficient, especially if the caloric restriction is accompanied by a severe reduction of the lipid content of the food.

The diet in kidney disease should not include a too severe reduction of the protein intake, especially if albuminuria is present.

Connected with the dietary considerations is the use of laxatives in old age. Constipation is believed to be a serious affection, because the intestinal poisons are not adequately destroyed by the liver.

The alimentary regimen in old age is so important that it must be considered advisable to subject every person over the age of 40 to a periodical physical examination, especially with regard to his metabolic condition. By such measure the troubles of old age may be reduced.

Menopausal Bleeding.*

W. ALLEN, *Department of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri.*

Cellular Patterns of the Vessel Wall: Their Disorganization by Aging and in Arteriosclerosis.

R. ALTSCHUL, *Department of Anatomy, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.*

There is an old term for the cardiovascular system. "The endothelial tube and its accessoria." This term seems very appropriate, because it stresses the great importance of endothelium and the comparative unimportance of the media and adventitia. Some authorities believe that the smooth muscle cells of the media are, ontogenetically, derived from endothelium; others report postnatal formation of smooth muscles from endothelium under pathologic conditions. The possible transformation of endothelium into fibroblasts is generally accepted.

Even if the accessoria do not always develop directly from endothelium, the latter seems to have an inducive influence on mesenchymal cells, causing their differentiation into smooth muscle. Moreover, endothelium proper may dedifferentiate and remain in this primitive state or turn into smooth muscle or fibroblasts. Endothelium as well as smooth muscle can migrate or glide into other layers and lose their specific characters. Dedifferentiation, metaplasia, and inductive powers of endothelium play a great role in the mural changes of aging vessels, in various angiopathies, and most of all in arteriosclerosis.

Preceding, accompanying, or following the morphologic changes there may be the dysfunction of endothelium so that it becomes more permeable or less permeable than normal. This may prevent the proper nourishment of the vessel wall and, in the

case of capillaries and venules, of the extravascular structures as well. It may also allow toxic substances to pass through it, thus damaging the vessel wall or the extravascular tissues.

The Feulgen-Schiff Stain in the Study of Age Changes in the Nervous System.

R. ALTSCHUL, *Department of Anatomy, University of Saskatchewan, Saskatoon, Saskatchewan, Canada.*

The so-called old-age or wear-and-tear pigment of nerve cells and neuroglia may be a waste product (Mühlmann) or an auxiliary substance (Altschul). In the inferior olive it is found even before birth. It occurs in man and, less plentifully, in animals. If larger quantities are present, it is seen without specific stains. These are: fat stains, silver impregnation, and gentian violet (after Volkman). It is probable that such different methods bring out different components of the lipofuscin-complex.

A good method for demonstrating this pigment, even after the fat has been dissolved out, is the Feulgen-Schiff reaction. Under favourable conditions, the pigment granules present a doughnut form, indicating that the core is "Schiff negative." By this method amyloid bodies also are stained very clearly, many of them showing vestiges of a nuclear pattern or transitions between amyloid bodies and nuclei of glia cells or of small nerve cells. Some of these bodies still show cytoplasmatic fringes. Although it has been thought that amyloid bodies occurred only in man they are found also in old animals. An increase in size may be due to swelling or to accretion from surrounding tissue fluids. The increase in number just beneath the pia or along blood vessels indicates either a greater vulnerability of subpial and perivascular glia or a mechanical dislocation.

The Use of Lipocaic in the Treatment of Presenile and Old Patients With Diabetes Complicated by Hypertension and Atherosclerosis.

G. ANDREANI *and* G. MININNI, *Medical Clinic, University of Florence, Florence, Italy.*

The existence of marked hypercholesterolemia in diabetes is not as frequent a finding now as it was in the preinsulin era, partly because diets low in fat are now widely used in the treatment of diabetes. Hypercholesterolemia is, however, found in a certain group of patients (in 40 per cent of a total of 500 patients) between 50 and 70 years of age and of plethoric constitution.

These patients present the following symptoms: diabetes of medium severity (glycemia of about 250 mg. per cent, high glucose threshold), arterial hypertension, retinopathy with predominance of vascular changes, renal lesions associated with albuminuria, and often coronary pathology. While the diabetes can be well controlled with moderate doses of insulin, the vascular lesions are not affected by this therapy.

In the present communication a report will be given of the effect of lipocaic in the treatment of a group of patients, aged 55 to 76 years, with this type of disease. The results obtained may be summarized as follows: (1) often marked reduction of the blood cholesterol concentration, the lowering of the cholesterol value lasting only during the 20 day administration of lipocaic, (2) moderate reduction of the elevated blood pressure, (3) improvement of renal function with decrease of the albuminuria, (4) slight improvement of vision, (5) development of a definite feeling of well-being. The subjective improvement was often more marked than the objective.

Biologic Action of Khellin.*

G. V. ANREP, *University of Cairo, Cairo, Egypt.*

B

Studies on the Relations Between the Respiratory and Vasomotor Centers of the Brainstem and the Somatic Facilitatory and Inhibitory Reticular Formation.

L. M. N. BACH, *Department of Physiology, Tulane University School of Medicine, New Orleans, Louisiana.*

Studies have been carried out on 36 cats anesthetized with nembutal, chloralose, urethane-morphine, or subjected to ischemic decerebration (non-anesthetized). Recordings were made of the knee jerk, blood pressure, and respiration. The brain stem reticular formation was explored with bipolar electrodes oriented with the Horsley-Clarke stereotaxic instrument and stimuli were applied ranging from 2 to 5 volts and at a frequency of 60/sec.

It was found very consistently that inhibition of the automatically and recurrently elicited knee-jerk was associated with simultaneous inhibition of respiratory movements, and with less consistency, a simultaneous drop in blood pressure. Conversely, it was found with high consistency that facilitation

or enhancement of the knee-jerk was associated with simultaneous enhancement of respiratory movements, and with less consistency, a rise in blood pressure.

It is believed, on the basis of this data, that the somatic facilitatory and inhibitory areas of the bulbar reticular formation are coincident with, at least in part, the classical vasoconstrictor and vasodilator areas on one hand, and the classical inspiratory and expiratory centers as well. Since these areas do *not* elicit overt activity when stimulated, but serve only to modify concurrent activity of other origin, it is proposed that these areas be stimulated in weanling rats by means of implanted stereotaxically oriented electrodes activated continuously from a remote source tuned oscillator after the method of Schmitt.

It is believed that if the dorsolateral reticular formation, the source of somatic, vasomotor, and respiratory facilitation, is thus continuously stimulated over the life span of the rat, the corresponding activities will be enhanced and such continuous enhancement of normal activity would provide a possible source of many of the degenerative diseases characteristic of aging as well as being a measure of any psychosomatic sources involved in aging.

Response in the Aged to Surgery of the Hip.*

C. E. BADGLEY, *University of Michigan, School of Medicine, Ann Arbor, Michigan.*

Experience of Health Insurance Plan of Greater New York with Older Persons.*

G. BAEHR *and* N. R. DEARDORFF, *Health Insurance Plan of Greater New York, New York, New York.*

The Medical Social Worker.*

A. L. BAKER, *Social Services Chief, University of Minnesota Hospitals, Minneapolis, Minnesota.*

Retirement Plans Under Social Insurance and Collective Bargaining in the United States.

R. M. BALL, *Division of Program Analysis, Bureau of Old-Age and Survivors Insurance, Social Security Administration, Baltimore, Maryland.*

The best way to reduce the burden of maintaining an increasing number of older persons is to expand employment opportunities for this group. Regardless, however, of the extent to which jobs are made available for older persons, the number who will be in need of retirement income in the future will be very large indeed. Regular employment is largely out of the question for most of those beyond, say, 75, for the disabled, and for women who spend their younger years as homemakers. Planning for the income needs of the retired group is thus essential.

Present arrangements are such that in the future practically all retired persons will have income from retirement plans. Nine out of 10 persons who work for a living are now earning retirement protection under one of the public programs. Eighty-five per cent of those with protection are under old-age and survivors insurance, while 15 per cent are protected by the retirement programs for federal civilian employees and for the armed forces, the railroad retirement program, and retirement systems of state and local governments.

The number of private pension plans in operation today can only be estimated. Some idea of the minimum number may be obtained from the fact that over 12,000 pension plans have been approved for income-tax exemption purposes by the Bureau of Internal Revenue, and several thousand additional plans have claimed tax exemption.

It is even more difficult to get an idea of the protection afforded by these plans. Perhaps 10,000,000 persons are working in jobs that would provide them with benefits supplementary to old-age and survivors insurance if they stayed in those jobs long enough. Service requirements for benefits differ markedly. Plans initiated through collective bargaining typically make no payments unless the individual is working in employment covered by the plan at the time of retirement and has worked there continuously for a long period, such as fifteen years. Full pensions typically require twenty to twenty-five years of continuous service.

By and large the noncontributory employer-sponsored plans also require long years of service. Contributory plans and insured plans more frequently provide rights to a deferred annuity after an employee has worked some minimum period with the employer. This minimum period, however, is usually substantial. In a recent study by the Social Security Administration of 376 insured group annuity plans it was found that 65 per cent required at least ten years. Practically all required at least five years. What information is available on the mobility of workers indicates that these service requirements are a very serious limitation on the protection actually afforded by private plans. The present provisions of many of the plans make them practically valueless for most younger employees.

In the last fifteen years we have made remarkable progress towards the orderly provision of retire-

ment income for the increasing number of aged people who cannot be expected to support themselves by working. In spite of the significant role which industrial plans have played in this development, it is clear that the old-age and survivors insurance program will be the sole retirement plan for the great majority of the nation's working population. Thus a constructive approach to the problem of income maintenance for the aged requires, first, the provision of adequate job opportunities for those who can work, and second, the strengthening of the basic old-age and survivors insurance program.

Jobs and the Older Worker.*

S. BARKIN, *Textile Workers Union of America, 99 University Place, New York 3, New York.*

A Large City School Program for Older Adults.

A. M. BARRON, *Gerontology Consultant, Los Angeles City Schools, 451 North Hill Street, Los Angeles, California.*

For many years our educational program has included older adults, but not until the last year have we offered a program especially designed to meet the needs and problems of adults 60 years and over. Los Angeles has about 175,000 adults in that age group and in order to see if they were interested in a program devoted to them, we carried on a six weeks' summer lecture course in the summer school. This experiment encouraged us with an attendance of 1600 student hours. The students were deeply interested and enthusiastic.

In the fall of 1950, 16 Adult School Principals volunteered to present the program in their schools. The objectives of the program were to establish broadened interests in order to relieve the monotony of retirement, to help older individuals understand the physical, emotional and mental changes which attend old age, to fill in the later years with more purposeful living, to supply social opportunities, to add "life to their years," and to present recent findings from research and travel.

The attendance included 13,000 students, which would mean about 25,000 hours of attendance for the program from October to June. This would be duplicate attendance since so many students came to the lectures throughout the school term. Of the 16 schools' attendance, there were three times as many women as men whose ages varied from 55 to 104 years.

A Pilot Study of Old Age in Elmira, New York.

M. L. BARRON, *Department of Sociology and Anthropology, Cornell University, Ithaca, New York.*

This study has been concerned with the problems in human relations arising from senescence. The attempt has been to ascertain the ways aged persons in a community readjust socially. A related concern has been to determine to what extent the types of adjustment the aged person makes or fails to make are dependent upon his personality and life history, the roles assigned to him as an aged person by the community, and the opportunities and facilities provided by that community.

The study has involved an analysis of the facilities for the aged and their utilization in an upstate New York community which had earlier been the locale of two intensive research projects, the Voting Study of 1948 and the Study of Intergroup Tensions. A series of interviews has been conducted with community leaders and professional personnel in such areas as recreation, social welfare, industry, politics, city government, and religion for the purpose of securing their perspective on problems of the aged. A statistical survey has been made of a representative sample of 300 old people in the community, and 100 of these people were subsequently selected for intensive case studies.

The Human Otic (Endolymphatic) Sac From Birth to Old Age.

T. H. BAST, *Department of Anatomy, University of Wisconsin, Madison 6, Wisconsin.*

It is now an established fact that most of the internal ear attains its maximum size shortly after mid-term except for the otic (endolymphatic) sac which makes its greatest growth during the postnatal growing years and continues to change as long as alterations occur in the posterior cranial fossa. Its surface area often increases five-fold. This change seems necessary to keep the rich vascular plexus, which surrounds the medial part of the otic sac, in close relationship to the sigmoid sinus into which it drains.

In cases where the posterior cranial fossa increases greatly the stretching of the otic sac is so great that in certain places the epithelia of the opposing walls become fused, degenerate, and are replaced by vascular connective tissue. In this way the continuity of the epithelial sac becomes interrupted. The epithelium of the otic sac shows a reversal of polarity—the nuclei being closer to the free margin. With age there is a tendency for accumulation of

a cellular debris and a viscid colloid-like fluid within the lumen of the otic sac. The colloid-like content seems to be especially marked in old interrupted sacs.

Bony Changes in the Human Otic Capsule.

T. H. BAST, *Department of Anatomy, University of Wisconsin, Madison 6, Wisconsin.*

Progressive hard of hearing has long been associated with bony alterations in the otic capsule. Just what these changes mean in regard to the functional decline of the hearing apparatus is not clear. The beginnings of bony changes have been thoroughly studied in human fetuses during the past twenty-five years. The present problem is to correlate such observations with those that occur during the postnatal life span. This report will be confined to that part of the otic capsule surrounding the fissula ante fenestram just anterior to the oval window, which has been called the "area of predilection" for otosclerotic foci. The incidence of bone changes is very high in this area and was observed on one or both sides in 25 out of 38 cases. The petrous bones were obtained at random from autopsies. True otosclerotic bone was observed in less than 2 per cent of the cases. The alterations and significance of such bony changes in relation to the fissula ante fenestram and the stapes joint will be discussed.

Aging of the Nervous System.

J. F. BATEMAN *and* J. W. PAPEZ, *Laboratory for Biological Research, Columbus State Hospital, 1960 Broad Street, Columbus, Ohio.*

In advanced age, nerve cells show metabolic changes best seen in the cerebral cortex and thalamus. 1) Formation of large particles of phospholipins in the cytoplasm is common. Damage to nerve cells occurs when these inclusions drop out and become embedded in walls of blood vessels where they give rise to sclerotic patches. 2) Changes in structural protein and neurofibrils may be responsible for alterations and decline of functions of nerve cells. 3) Intact cytoplasm and abundant Nissl substance indicate good functional capacity; the opposites are signs of impaired functions. 4) Within the nucleus, strong brushwork attached to one side of nuclear membrane is a sign of old age. 5) Pycnosis with increase of nuclear histone means diminished capacity to produce nucleic acids and leads to cell impoverishment. 6) A nucleolus with honey-combed rim indicates failing metabolism. 7) Necrotic changes found in nerve cells are terminal in nature. They result from vascular causes and irreversible changes in nerve cells. Shattered nerve cells, argentophile debris, senile plaques, gliosis, sclerotic fibers, amyloid bodies, perivascular demyelinations, and ependymal disruptions result from a failure of related bodily processes including circulation, respiration, nutrition, and dynamics of homeostasis. Scientific knowledge can alleviate these conditions.

Age Changes in Human Parotid Glands.

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In an attempt to explore the histogenesis of uncommon parotid gland tumors, 73 normal human parotids of individuals ranging from 2 months to 92 years of age were arbitrarily removed at autopsy. Forty-nine of these patients were between 51 and 92 years. Subserial sections of the parotid glands of this group were studied, using various stains, in order to determine the age changes of the parenchymal and the epithelial elements.

Although a few parotid glands in the eighth decade group displayed normal structure — an observation of special interest—most of the specimens revealed fatty infiltration and degeneration and only sporadically fibrosis. Lymphocytic, periductal infiltration was occasionally noted, the approximating acini being destroyed in some instances. Four parotid glands of individuals 85 to 92 years revealed Mönckeberg's medial sclerosis of the larger arteries. Often arterioles and veins appeared blocked by thrombi. Occasionally they were calcified.

In 7 of 49 cases, nodular accumulation of "oxyphilic granular cells" (onkocytes) were observed arising from the epithelium of the intercalated ducts. Applying a rigid criterion to the diagnosis of an "oxyphilic granular cell" it was not possible to confirm the statement of those who claim that these cells may also arise from the acini.

In three instances glandular formations of "water clear cells" (cellules claires) were observed. These interesting "empty" cells contained neither fat, mucin, nor glycogen.

Retirement.*

H. BECKER, *UAW-CIO, Social Security Department, 7930 East Jefferson Avenue, Detroit 14, Michigan.*

Blood Volume in Geriatric Surgery.

C. A. BELING, D. T. BOSCH, O. B. CARTER, JR., *Department of Surgery, Hospital of St. Barnaca, 15 Washington Street, Newark, New Jersey.*

Reduction of blood volume predisposes a patient to shock. When there is a 20 per cent deficit, shock may be imminent. It is usually present when the deficit is over 30 per cent, or can be precipitated by slight trauma, anesthesia, or even minor blood loss.

Decreased red-cell volume results in decreased oxygen carrying capacity of the circulating blood and hypoxia. Red-cell volume recovers slowly and, with larger losses, restoration may be incomplete for as long as two months after operation.

Patients who clinically appear to be reasonably good surgical risks often have serious blood volume deficits. Ordinary routine laboratory tests fail to disclose the extent of deficits and show no close correlation. They reveal concentration values but not volumes.

Elderly patients tend to have greater deficits than those in the younger ages, usually the result of physiologic alterations such as poor dentures, achlorhydria, dehydration, and sometimes psychic factors influencing proper food intake. Elderly persons with neoplasms have severe deficits. Lowered circulating hemoglobin, plasma proteins, and plasma are common.

The dangers of shock and high mortality are great in this group and may be largely eliminated by preoperative volume determinations followed by replacement. In a recent study of 500 consecutive patients over 60 years of age we found that shock occurred only in patients not evaluated before operation. The group which had replacement had lowered mortality, shorter hospital stay, and more rapid convalescence.

Younger patients do not need blood volume studies when approaching appendectomy and herniorrhaphy, for example. Such studies are important for the elderly patient.

Older persons tolerate quantitative replacement well, even in the presence of cardiac disease. In fact, replacement is mandatory when there is cardiac impairment.

In our method of evaluation of deficits, the total body protein deficit is but an approximation as it is based upon plasma protein concentration values, which may be but slightly subnormal even in presence of hypoproteinosis. Deficits of body protein take longer to make up and intensive protein feeding is one of the more important features of preoperative preparation.

Leonardo da Vinci's Studies of the Aging Process.

E. BELT, *The Elmer Belt Library of Vinciana, 1893 Wilshire Boulevard, Los Angeles, California.*

Leonardo da Vinci, painter, sculptor, musician, engineer, geophysicist, and anatomist, probed into all fields of human knowledge. He is called the first modern because he anticipated what science and invention would achieve in man's struggle to understand nature. In his mind there was no distinction between art and science. A great intellect governed the hand of the sublime artist.

Leonardo dissected more than 30 corpses, an astonishing number if one considers the restrictions in force in his day. He observed changes due to senility in the human body. He stated that the study of the cadaver should begin with the infant even in fetal life and should continue without interruption until old age. He believed that the changes in the organs were to be regarded as a continuous phenomenon, as normal and constant modifications essential to the natural cycle of growth and increasing age.

The exhibit and the slides accompanying this lecture will show Leonardo's study of the human figure from the fetal period to old age, his marvelous anatomic drawings of the changes in the blood vessels and his observations on senile arterial sclerosis, his studies of the liver "drying out like a frozen crust," and other examples of senile atrophy which he had observed and which he attributed to dehydration and to putrefaction within the bowels.

Leonardo observed the effects of old age on the skin which he states turns to the color of wood and dry chestnuts because it is deprived of nourishment.

We shall also show Leonardo's portrait studies of youth and age showing the radiant beauty of youth in contrast with the dignity and grandeur of the aged in the form of a philosopher, the keeper of highest wisdom, as Leonardo appears in his self portraits and as his contemporaries depicted him.

Acción del Alfatocoferol Sobre la Regresión de las Lesiones de la Aterosclerosis Experimental Colesteriníca del Conejo.

M. BELTRAN BAGUENA, *Paz No. 44, Valencia, Spain.*

En el Congreso Internacional de Lieja tuvimos el honor de comunicar los resultados de las experiencias realizadas en nuestra Seción del Consejo

Superior de Investigaciones Científicas, acerca de la acción inhibidora desarrollada por el alfatocoferol sobre la aterosclerosis experimental colesterínica del conejo. Estudiando posteriormente dos animales testigos dejados fuera de serie a las que seguimos administrando alfatocoferol sin nueva ingestión de colesterina, observamos al sacrificarles unas semanas despues que las lesiones ateroscleroses de su sistema arterial eran muy inferiores a las obtenidas en los animales de condiciones análogas que figuraban en el protocolo experimental. Por este motivo, ayudado por mis colaboradores del anterior trabajo, me dispuse a estudiar si, además de la acción claramente inhibidora del alfatocoferol sobre la aterosclerosis experimental colesterínica del conejo, era capaz también esta droga de lograr la reabsorción de las lesiones provocadas anteriormente por ingreso continuado de un suplemento de colesterina en su ración alimenticia.

Como en las experiencias anteriores, se tomaron animales de la misma raza (cruce conejo común y raza gigante). No se estableció ahora distinción de sexo, dado que no hallamos en las experiencias anteriores diferencia alguna atribuible a esta circunstancia. La edad de los animales fué de un año cumplido antes del comienzo de las experiencias. Fueron alimentados con la ración normal del Instituto a la que se añadió diariamente 15 centigramos de colesterina por cada 600 gramos de peso. Esta cifra es algo superior a la señalada por Pollak, dosis que en nuestro trabajo anterior calificábamos de excesiva, pero dado nuestro propósito demostrativo, pensamos que la reversibilidad de las lesiones, si existía, tenía que ser demostrable en esta primera serie experimental sobre bases firmes que excluyeran toda duda. Se hicieron determinaciones semanales del peso, tasa de colesterina y fesfolípidos durante toda la duración del periodo experimental. A la cuatro semanas de administrar la ración suplementaria de colesterina y tras de comprobar el incremento progresivo de la colesterinemia, se suspendió la ración de colesterina, sacrificándose dos animales para cerciorarnos de las existencia de lesiones ateroscleroses evidentes (Control de presencia de lesiones). Los restantes animales, salvo los testigos, fueron sometidos a la administración de alfatocoferol a dosis de 8 miligramos por kilogramo de animal. Fueron sacrificados luego de transcurridas 4, 6, y 8 semanas junto con los testigos correspondientes (control de persistencia de lesiones) a fin de observar comparativamente si existía o no regresión evidente del proceso ateroscleroso.

Anthropologic Studies in the Field of Gerontology.

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Anthropologic investigations in the field of gerontology which may be expected to yield information of value include, besides the usual measurements of morphologic, physiologic, and psychologic characteristics, studies on special problems. Among these may be mentioned investigations in old individuals of the relation of the length of the various long bones to one another and measurements of the length of the body as compared with measurements in the general population.

Another suggested study is the evaluation of changes in the old individuals correlated not only with age but with other factors, e. g., with the form and body build and with the individual's endocrine activity. In the latter field are included various biochemical problems: the relation of calcium metabolism to osteoporosis, the change in structure of collagen fibers and fragilitas ossium, the diminishing of the water-binding capacity of connective and muscle tissue, and the changes in pigmentation characterized by loss of pigment in hair and deposition of pigment in other tissues. A further promising area of investigation is specific growth problems in old age, and another problem where gerontology is concerned with anthropology is constituted by the rate of aging in various races. Related to this latter subject is the question of aging of the same race in different climates. Finally the social status of aging people in different racial communities may be evaluated in relation to the prevailing culture.

Myxomatous and Mucoid Changes in the Sciatic Nerve and Brachial Plexus of Aged Animals.

H. E. Biester, *Veterinary Research Institute, Iowa State College, Ames, Iowa.*

In the sciatic nerve and brachial plexus of aged horses, dogs, cats, and cattle areas of myxomatous tissue frequently are found. At times the process may consist almost entirely of typical stellate myxomatous cells, whereas in other instances the process consists chiefly of mucin with varying numbers of myxomatous cells. The lesions vary in size, sometimes replacing several or more funiculi. The process is not associated with incoordination or paralysis. The probable significance of this embryonic process to early age and late life is discussed. While the presence of this process is

associated with aging it must be considered also in the light of earlier influences such as nutritional factors, infections, and parasites.

The Place of the Synagogue.*

N. BILLER, *Home for the Aged and Infirm Hebrews, New York, New York.*

Studies on Aging of Skeletal Muscle.

L. M. BINET, *Department of Physiology and* F. BOURLIERE, *Department of Medical Biology, School of Medicine, Paris University, Paris, France.*

The senile involution of skeletal muscle is a constant feature of senility both in rat and in men. In rat muscular involution of the gastro-cnemius muscle is noticeable at the age of 2 years and the human biceps begins to show involution after the age of 55.

Senile involution is not the only cause of the lessening of muscular strength in old people. The study of the reflex resting tonus of the biceps in 143 females and 73 males aged 18 to 94 years has shown that the senile hypotonia is not fully explained by the anatomic involution of the muscle. The computation of partial correlations between age, resting tonus, and muscle size shows that some qualitative modification of the tonic contraction must be taken into account.

The abnormal fatigability of skeletal muscle in healthy aged people is another senile characteristic. The biceps muscle of men and women over 55 may be tired by repeated electric tetanizing stimulations much more easily than a muscle of similar size in younger people. The results of the Bourguignon's chronaximetric fatigue test are quite different in mature and aged individuals.

Age Changes in Verbal Fluency.

J. E. BIRREN *and* J. BOTWINICK, *Section on Gerontology, National Heart Institute, National Institutes of Health, Bethesda, Maryland, and the Baltimore City Hospitals, Baltimore, Maryland.*

The purpose of this study was to determine the change, if any, in rate of verbal fluency in later life. A total of 341 subjects between the ages of 16 to 90 years was given tests of verbal fluency in which the subjects were required to write as rapidly as they could words beginning with given letters, e.g., S. Thirty one subjects aged 20 to 29 years, wrote a mean of 24.9 words per two minutes (words beginning with S), σ=7.0. Thirty subjects aged 70 to 79 years wrote a mean of 6.0 words per two minutes, σ=3.1.

The younger group wrote at about 52 per cent of their rate of writing when copying words, whereas the elderly wrote at about 36 per cent of their potential writing speed. Thus, the eiderly show a retardation in verbal fluency beyond that associated with a slowing in the motor response of writing. Although previous studies have shown that vocabulary size does not change in later life, the present results indicate that an elderly individual may show a defect in thought arising from a low rate of association.

The Effect of Emotion on the Adult as Indicated by the Pulse Rate.

W. D. BLAKE, *Department of Psychology, Bucknell University, Lewisburg, Pennsylvania.*

The purpose of the study was to investigate the effect of an emotional stimulus on the circulatory system of adult individuals.

The subjects were 150 adults from 21 to 60 years of age in the author's classes at Bucknell University. No criterion of selection was used other than just indicated.

Each of the selectees was instructed in taking the pulse properly and then they aided each other in ascertaining the normal rate of each pulse. Each subject's pulse was counted at least eight times under normal conditions and a normal reading was obtained. After the norm for each was obtained, a series of unannounced subject matter examinations were given them at different times during the college semester. The pulse rate was taken each time as the questions were given out and rates noted. The differences between the norm and the pre-examination rates were found for all the selectees. Three groups of adults were set up according to the ages of 20 to 34, 35 to 49, and above 50 years.

The results showed that:

1. The younger adult seems to be less upset emotionally by a sudden introduction of a stimulus than the middle group.

2. The middle group at the 35 to 49 year level seems more stimulated than the younger group and more upset than the older group.

3. The older group was apparently less affected than any of the others.

Several inferences are possible from these results which may be of value in indicating physical and psychologic needs of older-growing adults.

The Relation of Age to Thyrotropic, Parathyrotropic, and Adrenotropic Activity of the Human Anterior Hypophysis: The Resistance of These Hormones to Various Physical and Chemical Agents.

H. T. BLUMENTHAL, *Laboratory of Pathology, the Jewish Hospital, and the Department of Pathology, St. Louis University School of Medicine, St. Louis, Missouri.*

Subcutaneous implantations of human anterior hypophyses of various ages were carried out in guinea pigs weighing 150 to 200 gm. In other experiments hypophyses were exposed to a variety of physical and chemical agents before such implantation. Mitotic counts were carried out on the thyroid, parathyroid, and adrenal glands of these guinea pigs according to methods previously reported.

The data show that the adreno- and thyrotropic hormone content of the human anterior hypophysis does not appreciably change with age, as has already been demonstrated by Loeb and Saxton for the gonadotropic hormones, FSH and LSH. The diminution of hormonal output with increasing age by the gonads, thyroids, and adrenal cortex which has been demonstrated in previous experiments must therefore be attributed to aging changes within these target organs.

Parathyrotropic activity was demonstrable only in pituitaries of young individuals by the technique utilized in those experiments.

The experiments also show that these pituitary tropic hormones are not inactivated by a variety of physical and chemical agents among which are several that characteristically denature proteins.

Some Applications of Macro- and Microradiography in the Study of Aging and Old Bone Tissue.

F. BOHATIRCHUK, *Department of Anatomy, University of Ottawa School of Medicine, Ottawa, Ontario, Canada.*

Usual radiographs, made on double coated x-ray film with intensifying screens, do not allow any magnification of the resulting roentgen image because of distortion. The reasons for this distortion will be discussed and a method for obtaining magnification will be proposed. Our microradiographs of aging and old bone will be demonstrated, allowing magnification up to x30. Examples of further applications of this method will be shown.

Indirect microradiography or historoentgenography, introduced into medicine by Lamarque, Barclay, Clark, Bohatirchuk and others, has only recently found a limited application in bone study. This method permits magnifications up to x500 and even more. Slides of bone usually 300 to 1,000 μ thick, with or without soft tissues around, are radiographed with relatively soft, homogenous x-rays (0.3 to 1.0A). Resulting radiographs are studied under the microscope. The possibility of obtaining additional contrast by impregnation of bone with x-ray opaque media will be discussed. Historoentgenographs of aging and old bone will be demonstrated.

Physiopathologic Foundations of the Aging Process.

D. BOLSI, *Clinica Delle Malattie Nervose e Mentali Dell'Università di Torino, Turin, Italy.*

In a single individual aging begins at different periods in various organs and tissues, depending on constitutional and hereditary factors, according to a biologic predestination. The unicist theories on the pathogenesis of old age are not fully satisfactory because they do not include all the aspects the aging process can assume.

Senescence in fact can manifest itself primarily in the parenchymal or mesenchymal organic elements, as shown for instance by primitive abiotrophies of the neuronic systems and, in the latter case, by various pathologic processes in joints and vessels.

The general consequences of primary parenchymal senescence vary according to the functional significance of the affected organ. Very important for the general aging of the organism, besides the involution of certain endocrine tissues, is the senescence of the autonomous nervous system, because of its regulatory influence on hormonal activities and on vegetative systems, of which the regulation of the small blood vessels is of particular importance.

Even if the senile involution of an organ is caused by a primary mesenchymal process, the general consequences vary according to the functional importance of the organ itself. For instance, whereas aging of the skeletal system has little importance in the general economy of the human organism, aging of the small vessels of the parenchymal structures is injurious. In summing up his views on the nature of the physiopathologic mechanism of aging, the author concludes that senescence is a pluridynamic process with various aspects in single individuals which almost never evolves with uniform progressiveness, but much more often with critical changes, according to the failure that progressively affects the various organs and to secondary decompensations and reactions.

Enlarging Biologic Patterns.

E. L. BORTZ, *2021 West Girard Avenue, Philadelphia, Pennsylvania.*

The human life span follows a definite biologic pattern. Warthin has outlined the biologic periods of human existence. Conception, evolution, maturation, and involution represent definite phases of the human life.

Biologic potentials of human life need be examined in the light of new and refined techniques. Individuals not only are living longer, but the years of optimum maturity are increasing. At the turn of the century men and women were looked upon as old when they reached the fifties. Today, statistical evidence indicates that the vigor and vitality of full maturity may extend well beyond three score years and ten.

"Old age," heretofore regarded as the period from 60 years onward, may in the majority of individuals from now on be postponed fifteen or more years. Individuals vary greatly; however, practical knowledge concerning the maintenance of physical, emotional, and mental vigor indicates that many deleterious influences, formerly accepted as inevitable accompaniments of aging, may now be avoided or at least retarded.

The biologic pattern of the human life cycle is expanding. Significant alterations in social practices are becoming necessary. Misconceptions concerning the mature and later years, enforced retirement while still in the prime of life, and the encouragement of physical and mental inactivity should be re-examined in the light of new knowledge.

Nutritional Deficiences and Premature Aging.

E. L. BORTZ, *2021 West Girard Avenue, Philadelphia, Pennsylvania.*

Dietary surveys of 300 individuals over 65 years of age have revealed inadequacies in the daily food intake in 65 per cent of those studied. Fatigue and weariness, which have too often been accepted as inevitable accompaniments of growing old are frequently the result of protein depletion. Over-alimentation with excess indulgence of carbohydrates and fats, plus insufficient Vitamin B-complex, invites premature aging.

A health survey of individuals in the later years is recommended. In this program emphasis is placed on adequate nourishment, satisfactory elimination of waste products, rest, and recreation. The foundation of wholesome later life depends largely on the establishment of an adequate nutritional program.

Growth and Aging Patterns in Snakes.

F. BOURLIERE, *Department of Medical Biology, University of Paris School of Medicine, Paris, France.*

Reptiles hold the record of the longest life span among living vertebrates and offer excellent opportunities for the comparative physiology of growth and aging. For turtles the data at hand show a prolonged growth period and a remarkable longevity. For lizards and snakes the data are scarcer but indicate a longer life span than for homeotherms of similar size.

The author describes a method of estimating the age of the common European grass-snake *(Natrix natrix)* and the viper *(Vipera aspis)*. From birth and up to at least 15 years these snakes do not cease to grow, but the growth-rate is not the same during the whole year. In fall and winter growth slows down and the skull bones, especially the anterior part of the ectopterygoid bone, therefore shows zones of differential deposition of bony material. These marks can be correlated with annual growth and are thus usable for age-determination.

The preliminary data gathered during the last two years fit pretty well with the previous observations made on the average duration of life in snakes in captivity. The growth goes on throughout life, slowing down as the animal becomes older. The rate of growth is more rapid in females than in males. Older animals did not present any evidence of senile involution of their various organs. The fertility of females does not lesson with age and the longer (and older) the female, the greater is its capacity to produce eggs or young.

Growth and aging patterns thus differ strongly in lower and higher terrestrial vertebrates.

Something to Live For.

G. E. BOWEN, *Philidelphia Recreation Association, 1625 Spruce Street, Philadelphia 3, Pennsylvania.*

It is not enough to give people a longer life. There must be content in the added years to make them worth living.

Happily, this reasoning seemed sound to lay and professional planners in Philadelphia. To demonstrate what could be done through the medium of recreation clubs, the Philadelphia Recreation Association was asked to initiate and promote a leisure-time program in a tricounty area for persons over 65.

Soon settlements, recreation centers, churches, synagogues, Y. W's., Y. M's., homes for the aged, and a Veterans Post offered their facilities. Many

religious and civic clubs became sponsors. Professionals and volunteers were appointed leaders in charge of the recreation groups. Cordial invitations were extended to all interested older people.

At the end of the fifth year of promotion 3,500 older persons of many races, creeds, and cultures are gathering regularly in 75 club and interest groups. Their yearly attendance is over 70,000. The program is expanding.

Now, in sociable gatherings of their contemporaries, older Philadelphians are happily engaged in a multitude of interesting recreational and educational activities. They are demonstrating what can happen with new friends to warm the heart, something to engage the mind, to utilize old skills and develop new ones—something to restore confidence. It gives them, in fact, something to live for.

Historical Aspects of the Religious and Fraternal Organizations in the Care of the Aged.

B. M. Boyd, *National Council of the Churches of Christ, 297 Fourth Avenue, New York 10, New York.*

A brief account of the historical basis for religious groups' interest in the care of the aged, including a reference to what was done for the aging in the ancient world, will be given. It will be shown that Christian charity took over some of the framework of the ancient world's charitable pattern and put into it Christian content. Reference will be made to the development of institutional charity which came to real fruition in the Middle Ages. The development of the institutional charity pattern as its deals with the aged will be outlined through its development in this country in both the Church, the Synagogue, and fraternal organizations. A final summary of present status of institutions for the aged in all groups will be given, and some reference will be made to the present trends in the religious and fraternal organizations and to their responsibility to the aging. In conclusion suggestions will be made of how Church, Synagogue, and fraternal organizations may work with all groups that are interested in giving services to the aging.

The Role of the Church and the Synagogue in Work With Old People.

B. M. Boyd, *National Council of the Churches of Christ, 297 Fourth Avenue, New York 10, New York.*

The religious concern of Judaism and Christianity for older people is grounded in sacred scriptures. For Judaism this means the Old Testament, for Christianity the Old Testament as interpreted in the light of the New Testament. Both the Old Testament and the New Testament give the background for religious motivation in services to the aging, hence historically from this theological background both Judaism and Christianity down through the centuries have given service to the aged.

Church and Synagogue are aware of the changing pattern of the age structure of the U. S. This awareness has found expression in several ways. Both Judaism and Christianity within their respective groups have established on the national and local level agencies and institutions that give service to the aging. In addition both religious groups have shown a willingness to participate in non-sectarian conferences dealing with the problems of the aging and to cooperate with non-sectarian agencies and institutions in giving service to the aging. An example of this was the participation of the two religious groups in the 1950 Federal Security Conference on the Aging. Another illustration is found in the fact that members of the two groups are on the Board of the National Committee on the Aging sponsored by the National Social Welfare Assembly. Further, they have shown a willingness to exchange between themselves ideas and information that would prove helpful to their respective groups.

The specific resources of Church and Synagogue may be developed into two major categories: (a) physical, under which one will think in terms of approximately the number of institutions for congregate living under religious auspices (i.e., welfare agencies operated by Church and Synagogue to meet this need), (b) the spiritual resources of both Church and Synagogue (chaplaincy service and pastoral services of rabbi, priest and minister).

Both Church and Synagogue are attempting through their respective constituencies to develop better attitudes on the part of the young and middle aged toward the aging. This is being done through Church School and Sabbath School, through study groups in laymen's organizations, and through the normal ministrations of clergymen and rabbis.

It is somewhat difficult to indicate what future developments in Church and Synagogue will be in the program for the aging. It is certain that they will continue to give assistance to the aging. Certain trends might be cited. There is a definite effort to better these services by raising standards for institutions and by employing professional personnel. The trend in construction of institutions is to pay attention to the actual physical needs of the aging. Another trend is to use the technique of foster home care for the aging rather than institutional care.

The Church and Synagogue will continue to em-

phasize that the aging are people and not museum people and have creative ability that should be respected and to stress the importance of the infinite worth of all persons to the end of their days. It is against the backdrop of eternal destiny that Church and Synagogue plan for their aging members.

Hypertension and the Relation Between Kidney Weight and Body Weight in the Rat.

E. BRAUN-MENENDEZ, *Instituto de Biología y Medicina Experimental, Costa Rica 4185, Buenos Aires, Argentina.*

Kidney weight in the rat as in other animals increases with body weight. Body weight and metabolic processes and kidney weight and kidney function are similarly related. If one kidney is removed the intact kidney grows in size and increases its function until a new equilibrium is reached between the metabolic processes in the body and kidney weight and function.

Any hindrance to the normal growth of the kidneys, or to the compensatory hypertrophy of the remaining kidney after unilateral nephrectomy, will cause hypertension. Similarly hypertension appears whenever the balance between body weight and kidney weight or function is gradually or abruptly broken (subtotal nephrectomy, increased body weight, or increased metabolism in animals with limited renal function). Contrariwise restitution of the broken balance (increased renal function brought about by parabiosis or decreased general metabolism brought about by partial fasting, hypophysectomy, etc.) will cause the decrease or diappearing of hypertension.

Data from the literature and personal observations will be presented supporting these conclusions.

The Community and Employment.

E. BRECKINRIDGE, *Survey of Employment Programs for Older Workers, University of Chicago, Chicago 37, Illinois.*

Information on the employment of older workers and related factors is inadequate and usually uncorrelated. In Chicago there have been four activities involving assembling data about older workers in relation to the community.

1. A study of the needs of 552 dependent older people showed the interrelationship between employment, health, personal adjustment, and dependency.
2. Organization of a Senior Employment Problems Committee illuminated the concern of management for the older worker.
3. Formulating a Community Plan involved review of programs serving this group.
4. Conducting an information service for older people showed their desire to work, flexibility, and capabilities.

On the basis of these activities and the information they provided, it is concluded that public agencies should establish special programs of research, placement, guidance, and retraining; and that management should initiate research into productivity, job analyses, retirement policies, and counselling.

Employment and Retirement Patterns for Older Workers in American Business and Industry.

E. BRECKINRIDGE, *Survey of Employment Programs for Older Workers, University of Chicago, Chicago 37, Illinois.*

The wide and growing interest in problems of adjustment in the later years of life has one focus in the area of work and retirement. Although the typical urban industrial practice is one of retirement from full-time work to idleness at an arbitrary age, there is known to be a variety of other practices, such as the following:

Selective retirement, based on individual fitness.

Part-time employment for some time preceding retirement.

"Superannuated wage rates," for older workers.

Shift to a new job requiring less skill or energy.

Grouping of older workers into a homogeneous working crew.

Related to this general problem are the following:

Programs of counseling employees and of helping them plan ahead for retirement.

Prognostic and diagnostic tests of fitness for work.

Committees on Employment of the Older Worker.

Though these things are known to exist, there has been no systematic knowledge anywhere covering them.

The aim of the survey is to discover, describe, and evaluate a number of flexible programs for retirement. Questionnaires were sent out to a wide variety of organizations, and follow up visits were made to those which seemed to have the most interesting and varied programs. In addition, opinions about these practices have been secured from employers and labor union leaders.

Similarities and Differences in a Comparison of Adolescense and Old Age.

D. M. BRIELAND, *Institute of Child Welfare, University of Minnesota, Minneapolis, Minnesota.*

In comparing adolescence and senescence, many differences are clear, but recognition of similarities is also important. These periods are both becoming longer. Individual differences are increased so that chronologic age is less useful as a reference point than it is in considering childhood or adulthood. Employability is limited in later adolescence and in old age. Dependency and economic worry underlie family conflict and personal insecurity. Housing arrangements impose limitations on personal freedom. Interests are likely to shift at both periods, although the consequences are quite different.

The body with its influence on the concept of self undergoes significant changes which create a particular need for psychologic adjustment. Sexual development may result in anxiety in adolescence because of concern about the emergence of sexual capacities, and in the later years because of concern about their decline.

Both groups are likely to have difficulty satisfying their need for status and receiving mature treatment from others.

Among the significant differences between adolescence and senescence are those involving reaction time, time perspective, differential significance of peer-group pressures, and increasing complexities of social organization. Conflict is particularly evident in the associations of 'teen-agers and grandparents within the family.

The Age Incidence of Certain Neurotropic Virus Infections.

G. O. BROUN, *Department of Internal Medicine, St. Louis University School of Medicine, 1325 South Grand Boulevard, St. Louis 4, Missouri.*

During the first epidemic of St. Louis Encephalitis, a definite tendency to increased incidence of the disease with advancing age was noted. A similar tendency had been noted in the earlier epidemics of Japanese B Encephalitis.

A second epidemic of St. Louis Encephalitis occurred in 1937. Certain changes in age incidence were noted, as compared with the first epidemic. Experiences in other outbreaks of the summer types of encephalitis in this country will be reviewed, as well as more recent reports concerning Japanese B Encephalitis. These will be discussed in relationship to what is known concerning the epidemiology of these diseases.

Sculptural Anatomy and Surgery of Facial Senescence.

A. M. BROWN, *1260 Lake Shore Drive, Chicago 10, Illinois.*

The personal appearance of individuals of advancing years has not as yet been stressed in the gerontologic literature. Certain facial characteristics are associated in the public mind with aging. Individuals who show facial signs of senescence, whether these evidences are premature or not, suffer psychic, social, and even economic dis-ease because of them.

This presentation includes a colored motion picture, running time about twenty-three minutes, illustrating esthetic surgery cases, and including cases of surgery for facial senescence. The mechanism of facial senescence will be discussed, and the rules of optics as applied to the development of facial senescence will be stressed.

The role of skin atrophy and bone absorption will be described, and the importance of the role of wear on the teeth and of the changing vertical dimensions of the face with age will be discussed.

Age Changes in Body Composition During Maturity.

J. BROZEK *and* A. KEYS, *Laboratory of Physiological Hygiene, School of Public Health, University of Minnesota, Minneapolis, Minnesota.*

It has been shown (*Science, 112;* 788, 1950) that healthy, older men of normal body weight (standard for their height and age) have a markedly larger amount of body fat than younger adults. In order to eliminate the factor of the increase in gross body weight, 104 older men (average age = 50.3 years) were individually matched to 65 younger men (average age = 21.8 years) of the same height and weight, with average values of 175.3 cm. and 73.3 kg. in the younger group, and 175.0 cm. and 73.5 kg. in the older group.

The specific gravity values were 1.073 and 1.058, corresponding to 12.6 and 20.0 per cent of the body as fat. Other criteria of fatness showed consistent differences in the same direction. The thickness values of the skinfolds, in millimeters, measured at the abdomen, chest, back, arm, and thigh were 18.6, 15.6, 15.4, 12.8, and 9.6 versus 25.4, 23.4, 18.8, 13.9, and 9.4. The difference, in centimeters, between the

chest circumference and abdominal circumference was 14.2 and 7.7. It is concluded that aging is accompanied by marked changes in the composition of the body, with the muscle mass being replaced in part by adipose tissue.

Problems of Inspection and Licensing of Private Nursing Homes and County Homes.

L. E. BURNEY, *Indiana State Board of Health, Indianapolis 7, Indiana.*

Nursing homes, under various names, have been in use for many years. Many of such homes began as a substitute for hospitals; others began as boarding homes, places for the care of elderly and disabled people without homes or friends. The commercial nursing home, as we know it today, came into being because of an urgent public need. While commercial nursing homes have sprung up and increased in number in every part of the country, good nursing homes are still in short supply. The need today is for more good nursing homes.

Service and care in a nursing home can be more than a custodial job, more than a mere waiting existence. It can be instructive, therapeutic, rehabilitative, even for elderly people who may be thought to be helpless and dependent.

There has been considerable increase in the acceptance of the responsibility by the state for supervision and licensing of nursing homes. More than 25 states now have laws applicable to nursing homes with state departments responsible for inspection and regulation of these homes. Operators of nursing homes have begun to join together in a cooperative effort to improve standards of care and quality of service. Twenty of the states of the Union now have voluntary state-wide organization of licensed nursing homes. A national organization, the American Association of Licensed Nursing Homes, to include all organized states is now established. This organization, which began with the State of Indiana in 1945, represents a voluntary effort on the part of all who are interested in and responsible for the care and service to be given in nursing homes.

The objective of such cooperative organization is to improve the quality and adequacy of care and service and to integrate the nursing home with the over-all state and national program to meet better the problems and needs of our aging population. Heretofore we have been concentrating on just the beginning of our old age problem. We have been concerned mostly in keeping old people alive through old age assistance or keeping them out of the way in homes or institutions. We are finding now that this is neither the approach nor the answer to the problem. We must concentrate on efforts that will prevent elderly persons from needing old age assistance or care in institutions. The prevention of chronic illness and chronic disability, the rehabilitation of those who can be restored to a degree of usefulness, and the oppportunity for continued, productive, and satisfying employment—these are, in a large part, the answer to the problem.

Objectives and Techniques in the Psycho-Social Study of Old Age.

S. R. BURSTEIN, *Wellcome Historical Medical Museum, London, England.*

Distress to the old and younger generations caused by the present imbalance of age-groups in the population is a pathologic condition of which the aetiology and symptoms must be understood in order to undertake both treatment and prophylaxis. Physical rehahilitation, laboratory research into the science of aging, social security, and public welfare measures are making progress, but there is danger of segregating the old person as a problem case from his life as a functioning member of the community. To combat this danger, much more psycho-social research is necessary.

This paper presents some qualitative findings of more than twelve years' personal study of old people in factories, private homes, almshouses, public institutions, and hospitals; in retirement, living alone or with families; in wartime re-employment; in air-raids and evacuation centres; in post-war conditions. The study has also included the reactions and opinions of younger people living in various reciprocal relations with old people.

Technique varies; the permanent essentials are elasticity and patience. The data elicited cover life in the home circle and in the community, attitudes to senescence, socially dependent groups and family or communal responsibility, generational conflict, etc.

The objectives of such investigations should be not merely to alleviate present distress but to contribute to a prophylactic programme for the mental and social health of present and future generations in old age.

C

An Evaluation of Sex Hormone Replacement in Aged Women.

B. McD. CALDWELL, R. I. WATSON, W. B. KOUNTZ, *and* W. H. MASTERS, *Department of Neuropsychiatry, Division of Gerontology, and the Department of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri.*

The purpose of this study was to measure objectively by means of psychologic tests the effects of

sex hormone (estrogen and testosterone) replacement therapy given for one year to a group of aged females. Preliminary studies had suggested that such treatment possessed definite psychologic benefits. Of 28 patients, mean age 75 to 76 at the beginning of the study, 13 received injections of steroids and 15 served as controls, receiving injections of a neutral oil. The general procedure was to administer a battery of psychologic tests prior to the introduction of therapy, after six months of therapy, and again after one year.

The results tend to give strong support to the hypothesis. Intellectual functioning, although not uniformly at a higher level in all its manifestations, does show some improvement in so far as ability to think and willingness to expend intellectual energy are concerned. Memory appears definitely enhanced, particularly in respect to meaningful and logical material. Even in areas where there is no distinct improvement, there is often less decline than would have been expected by virtue of the increase in age of the subjects between the examinations. Furthermore, the patients demonstrate a decrease in rigidity of thought processes and habit patterns and an increase in general motivation to succeed and cooperate.

Nutrition, Senescence, and Rejuvenescence.

A. J. CARLSON *and* F. HOELZEL, *Department of Physiology, University of Chicago, Chicago 37, Illinois.*

Child (*Senescence and Rejuvenescence*, University of Chicago Press, 1915) found that starvation apparently rejuvenated planaria. Child and others also regarded reproduction to involve rejuvenation. Our personal experiences with prolonged fasting before 1916 seemed to confirm Child's view that the findings on lower organisms applied more or less to higher organisms. Consequently, Kunde (1923) and Takahira (1925) determined the effect of prolonged starvation on the basal metabolic rate of 3 dogs and 7 human subjects and found it to be increased, but Kleitman (1926) was unable to confirm this in a study on one of us (H.). Glaze (1928) found mental efficiency to be improved in 3 subjects after prolonged fasting. More recently, we (1946) were able to demonstrate that the life span of rats could be prolonged by intermittent fasting, although the results could also be regarded as indicating that the life span of rats fed *ad libitum* was shortened. Besides this, we (1950) have been finding that the fertility of rats is impaired by overnutrition and Rudzinska (1951) reported that longevity and reproduction in *Tokophrya infusionum* are reduced by overfeeding. As overnutrition promotes senility, it may impair reproduction by decreasing the possibility of rejuvenation.

Acute Appendicitis in Chronically Ill Geriatric Patients: Report on 22 Cases Past the Age of 60.

L. CARP *and* J. A. ARMINIO, *1016 Fifth Avenue, New York 28, New York.*

Goldwater Memorial Hospital in New York City is an 1800 bed municipal institution for the treatment of chronic disease. Most of the patients are in the older age groups and they have prolonged illness from degenerative diseases of all types. Twenty-one such substandard risk patients between the ages of 60 and 90 who had acute appendicitis with or without abscess or peritonitis are discussed. They cover a period between 1939 and 1951. Atypical clinical syndromes, difficulty in diagnosis, delayed operation, catharsis, and accompanying degenerative disease all contribute to a high mortality, which in the present series was 23.8 per cent. Mortality statistics from other sources are also presented. Peritonitis, pneumonia, cardiac failure, and thrombosis were among the leading causes of death as verified at autopsy. Suggestions are made to help in the reduction of mortality.

The pathology is discussed, with special reference to the role of the absence or diminution of lymphoid follicles in the wall of the appendix, sclerosis of the vessels supplying it, and obstruction in its lumen. All these factors tend to produce early massive gangrene.

So-called conservative therapy, in which the appendix is not removed or in which abcesses or peritonitis are not drained, is not approved. Appendectomy is indicated, except in those cases where technical difficulty would prolong the operative time to such an extent that the hazard to life would be markedly increased or where the additional trauma would be instrumental in further spread of infection. Generally, the McBurney incision is the most preferable.

The Three-Generation Family.

R. S. CAVAN, *Department of Sociology, Rockford College, Rockford, Illinois.*

In many cultures parents remain in the family home until death, along with one or more married children and grandchildren. In these societies roles are defined for different age groups and just as a maturing child passes from one role to another with increasing age, so does the old person pass from the middle-aged to the old-age role. Along with these roles, techniques of interaction have been developed to maintain the family as a functioning unit. Examples are given from French Canada, an old German settlement in Wisconsin, etc.

In our society at the present time whatever earlier techniques we had for the three-generation family have been largely lost as a general cultural factor. Nevertheless, families with old parents, married adult children, and grandchildren do exist. In some of these families, peace reigns, in others conflict divides the family. In view of the increasing proportion of old people and the loneliness of the old, it is important to know the factors that make for happiness and peace in the three-generation family as well as the factors contributing to disunity.

A short series of descriptions of three-generation families, written primarily by a member of the youngest generation, has been collected. The series is not large enough nor representative enough for a statistical analysis, but it lends itself to an analysis of types of situations and related outcomes. Tentative hypotheses emerge that may serve as the starting point for a more consistent study.

Personal Traits of Older People as Judged by Their Juniors.

A. R. CHANDLER, *Department of Philosophy, Ohio State University, Columbus, Ohio.*

A questionnaire was prepared asking the respondent to judge some older person on 22 personal traits such as rigidity of opinion, dominance, irritability, optimism, and humor. This was circulated to college students, alumni, and professional people. Returns on 503 subjects were tabulated in 7 age groups: 50 to 54, etc., to 80 and over.

Contrary to expectation, a Chi Square test showed no significant difference among age groups. There was a marked predominance of desirable traits.

A second questionnaire was circulated, using the same list of traits and asking whether each trait had increased or diminished in the last five years. On 43 returns received numerous changes were reported, although the commonest report on nearly every trait was "no change." Since many changes cannot be rated as desirable or undesirable unless we know the degree of the trait after the change, a third questionnaire was circulated combining the other two. Ninety-four returns were received and a rating scale of desirable and undesirable changes was applied.

The frequency of the various traits and changes and the apparent conflicts between results on the different questionnaires are discussed.

Planning for the Aged in Mexico.

A. CHAVERO, *Instituto Mexicana Del Seguro Social, México, D.F., México.*

There are three types of population, that is, nations with incipient decline, nations with transitional growth, and nations with high growth potential. Mexico, as well as most of the other Latin American countries, should be classified mainly under the third type and only partially under the second. However, the populations of the first type, those with incipient decline, are those with heavy problems of "the aging of population," due both to the declining birth rate and to the declining mortality.

From demographic statistics of Mexico, which can be applied to other Latin American countries, it is clear that demographic, social, and economic consequences of the phenomena of the aging populations do not affect those countries, at least with the same intensity. For instance, the problem of employment of older persons, with its heavy moral, economic, and social effects, is not so important in these countries, and for its solution Mexico has the invalid and old age insurances, granting old age pensions to insured workers who fulfill the legal requirements. Nevertheless, there are other problems with a greater intensity, for example, that of how to lower the exorbitant rates of infantile mortality by the aid of the sickness and maternity insurances.

The provisions of the Mexican Social Security Law are of the most advanced type and will be dealt with in detail. Three of these provisions are: (1) old age pensions increase very intensively when the person entitled to it continues as an employee and therefore under the insurance scheme; (2) persons entering the insurance scheme in an advanced age are entitled to a betterment in their pensions, as the period of their previous employment is taken into consideration even though they might have not been insured at that time; (3) the old age pensioners are entitled to medical care and even hospitalization for themselves and for their families.

But the granting of a pension, which is the solution of the financial aspect of the problem, is by no means a satisfactory and complete solution of the complicated problem of social policy adapted to the needs of old age persons. If the granting of the old age pensions is directly connected with the attainment of a certain age, that creates in the pensioner a feeling of frustration, of not being useful any more, and provoking in him the impression of a loss of human dignity. Among the ways tending to lighten this change are providing the old age pensioner with a hypothecary loan and a cheap home in the country with the posssibilities of a small farm.

Growth and Aging of Tissues and Organisms.*

M. CHEVREMONT, *Laboratoire d'Histologie et d'Embryologie, Université de Liège, Liège, Belgium.*

The Effect of Age on Beard Growth in Men.

M. CHIEFFI, *Division of Gerontology, Washington University School of Medicine, St. Louis, Missouri.*

A study was made of the quantity of beard grown in twenty-four hours in 64 men between the ages of 25 and 105 years. The beard was collected and weighed as previously described by Chieffi (*J. Gerontol.*, *4*:200-204, 1949). The daily beard growth was found to decrease from an average of 60 ± 14 mg. in the 25 to 39 year group to 35 ± 13 mg. in the men aged 80 years and over.

The Rate of Destruction of Thiamine by Gastric Juice of Old Individuals.

M. CHIEFFI *and* J. E. KIRK, *Division of Gerontology, Washington University School of Medicine, St. Louis, Missouri.*

Gastric juice was obtained by aspiration from 20 fasting old individuals and the pH of the samples determined electrometrically. Thiamine was then added to the gastric juice in an amount to give a final concentration of 40 μg. per cent. The samples were placed in a thermostat at 37 C and the thiamine content determined by Friedemann and Kmieciak's procedure immediately after the addition of thiamine, and after one-half, two, five, and twenty-four hours. The mean loss of thiamine after one-half hour was 24 per cent, after two hours 34 per cent, after five hours 40 per cent, and after twenty-four hours 48 per cent. The destruction of thiamine was generally found to be greater in the samples of gastric juice having the highest pH.

Illness Among Older People in Hagerstown, Maryland.*

A. CIOCCO *and* P. LAWRENCE, *School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania.*

Labor Force Trends in the United States.

E. CLAGUE, *Commissioner of Labor Statistics, United States Department of Labor, Washington, D.C.*

Although the aging of the United States population has been accompanied by a long-term increase in the number and relative importance of older workers in the labor force, there has been a pronounced and fairly continuous decline in the proportion of older men who have engaged in gainful activity. As a result, increases in the average length of the working life span of American men workers since the beginning of this century have failed to keep pace with the gains in biologic life expectancy.

This trend towards a widening gap of economic dependency in old age has come to be regarded by many observers as an almost inevitable accompaniment of the changing pattern of economic life in the United States. It has been closely associated with the waning importance of agriculture and the handicraft trades, the extension of mass-production techniques, the growing scale of business enterprise, and with resultant changes in the occupational structure. The effect of these long-term economic forces in limiting employment outlets for the aged or near-old was intensified by the Depression of the 1930's. The establishment and extension of social security and pension programs—designed to cope with the growing problem of old age dependency—in turn lent some momentum to this trend towards earlier retirement.

From the standpoint of social policy, there has been a significant reversal in opinion as to the role of older people in the economy. Programs developed during the depression decade of the 1930's were designed to encourage retirement of older workers in order to "make jobs" for younger men. However, during World War II and again at the present time, older people at or near the conventional retirement age span have represented one of the Nation's major manpower reserves for meeting the requirements of defense production. Public policy is now designed to encourage industry to make greater use of older workers and to assist older workers to remain at work, or to return to work if they have already retired. This policy must apply not only to emergency situations, but to a long-run peacetime program, in order to maximize the Nation's productive potential and reduce the economic, social, and psychologic burden of old-age dependency.

In an expanding and healthy economy, a goal of maintaining and even widening the scope of employment opportunities for older people is a feasible one. The social investment of past decades in improved health and higher educational standards of the population can be realized in terms of future generations of older people with greater physical vigor and greater social and occupational adaptability. Certain occupational trends, such as the increased importance of professional and service occupations, may also provide increased employment outlets for older workers in fields where their maturity, experience, and dependability are important assets. Finally, a long-range program to overcome artificial barriers and prejudices against employment of older people and to assist them in adjusting to changing industrial conditions is needed.

Income Maintenance for the Disabled.

W. J. COHEN, *Federal Security Agency, Washington, D.C.*

Equal in significance to the need for providing employment for able-bodied older workers is the need for returning to employment workers who have become disabled and for protecting disabled workers against part of their income loss. The need is most pressing for those who are prematurely retired because of permanent and total disability.

As more people live to older ages, so there are more people who suffer from high blood pressure, stroke, kidney disease, cancer, crippling arthritis, failing eyesight, and other handicaps associated with aging. There is, therefore, considerable reason to believe that the number of persons with disabilities and the total economic losses arising from disability are increasing, particularly in the age group approaching 65, where disability is most likely to become permanent. For such older workers, disability is in effect premature retirement — retirement which is burdened with the extra costs connected with illness.

Planning for the problem of disability is twofold. First, it is necessary to rehabilitate and secure employment for more of the disabled than in the past if we are to maintain high levels of production and high standards of living. Second, it is necessary to provide for income maintenance for those who cannot be rehabilitated, in the sense of being returned to productive employment, and for those who eventually do get jobs during the often long period in which they cannot work.

Insurance protection against both permanent and temporary disability, made an integral part of old-age and survivors insurance, would have many advantages. It would provide workers with continuing protection as long as they are disabled. They would not lose protection by changing jobs or moving from one state to another. Their rights to retirement and survivor benefits would be preserved during periods of permanent and total disability. Maximum operating efficiency, uniformity, consistency, and economy would be obtained; there would be no overlapping or duplication of facilities. Working relations with the medical profession, with state rehabilitation agencies, and with various groups in the welfare field would be clear-cut. Finally it would be feasible administratively to extend an integrated program to the broadest limits consistent with national policy.

The Environmental Aspects of Accident Causation.

W. G. COLE, *Safety Bureau, Health and Welfare Division, Metropolitan Life Insurance Company, New York, New York.*

Outstanding advances in the medical and surgical sciences in the U. S. have contributed to the fact that except for young children the greatest increase in our population in the past decade has been in the age group of 65 and over. As one disease or cause of death after another has come under the scrutiny and control of medical science, the importance of such causes of death has diminished. Traumatic accidents, however, which have not as yet been subject to the same degree of scientific study and control, although showing some reduction in certain areas of experience, have increased in comparative importance and today rank fourth among the leading causes of death in the U. S.

According to the National Office of Vital Statistics, about one-third of all accidental deaths occur in the age group of 65 and over. The morbidity from accidents in this group is also comparatively high. It seems inconsistent with modern scientific advancement that lives which are being lengthened should be subject to sudden termination or to months and years of painful suffering due to a preventable cause, namely, accidents. Two-thirds of all accidental deaths in this older age group occur in and around the homes of the victims. Many of the fatalities and serious injuries of the aged are attributable to environmental conditions such as loose floor coverings, improperly equipped stairways, inadequate fire protection, etc. The elimination of these condtions in private and group homes where the aged live, will aid them to enjoy more thoroughly the benefits of those additional years which medical science has bequeathed to them.

A New Extract Derived From Pregnant Mammalian Liver: Its Effect on Hypertrophic Osteoarthritis and Peripheral Neuropathy.

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This communication deals with the evaluation of a new extract derived from pregnant mammalian liver and possessing unique clinical properties. It is a water soluble extract, transparently clear, amber colored and non-toxic. It possesses the property of rapidly reversing the symptom-syndrome of hypertrophic osteoarthritis, particularly those manifestations related to soft tissue swelling, pain, and stiff-

ness. In a series of 110 cases studied, analysis of the results yielded the following data: 84 per cent showed evidence of clinical improvement of which 22 per cent had an excellent result, 46 per cent showed a good response, and 16 per cent were fair. Sixteen per cent failed to respond. It produces prompt reversibility in the stiffness syndrome of guinea pigs, a condition which may be the counterpart of osteoarthritis in man.

The extract also has the property of quickly reversing the symptom-syndrome of peripheral neuropathy both in diabetics and non-diabetics. In a series of 125 cases studied, 93 per cent showed evidence of reversibility of the following order: 47 per cent gave an excellent response, 39 per cent were good, and 7 per cent were fair. Failures were encountered in 6 per cent.

It appears to have a questionable effect upon the clinical course of rheumatoid arthritis.

Analysis of the extract for vitamin B_{12} activity and folic acid by microbiologic procedures revealed 0.09 gamma per milliliter of B_{12} and 0.14 gamma per milliliter of folic acid. Such trace quantities eliminate these substances as factors responsible for the therapeutic effects observed.

The paper deals with an analysis of the material, toxicity studies, and clinical evaluations with case reports.

Androgens, Aging, and Disease.

R. R. COMMONS, *Department of Medicine, University of Southern California School of Medicine, Los Angeles 33, California.*

Androgens are a physiologically delineated member of the family of endogenous and exogenous steroids necessary for optimum homeostasis. There is clinical and laboratory evidence of declining androgen production in the aging. In contrast there is not good evidence of declining production of those steroids whose main physiologic action is analogous to desoxycorticosterone or 11-hydroxy-17-hydroxycorticosterone. It would appear that proportionate excess of these latter steroids may contribute to such phenomena as thin skin, muscular wasting, osteoporosis, and hypertension.

Laboratory and clinical evidence suggest that androgens are of benefit in the prophylaxis and treatment of some of the phenomena of aging. However, no definitive data are available to rule out the possibility that such a regimen would produce detrimental side effects such as increasing the likelihood of carcinoma of the prostate.

Massive doses of testosterone have been administered in acute disease with apparent benefit to the patient and without the appearance of virilism. Virilism appears with relatively small doses of testosterone during remission. Androgen may be desirable to tolerance to maintain homeostasis in disease and aging. The possibility is submitted that deficiency of opposition steroids in the metabolic mixture is pathogenetic. This latter possibility may be compared to the concept of adaptation.

La Vejez en la República Dominicana.

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La vida de los ancianos en la República Dominicana es enteramente familiar. El gobierno, cuando han sido sus empleados, los jubila con sueldo. Previsión Social, las Empresas Comerciales, Agrícolas, y Fabriles les conceden pensiones vitalicias, conforme a nuestras leyes.

El primer asilo para ancianos fué fundado por el filántropo Dominicano Francisco Xavier Billini. Hoy casi todas las ciudades tienan sus asilos para ancianos. Los asilos acojen los ancianos con devoción y cariño.

La Secretaría de Sanidad y Previsión Social les suministra médicos y medicinas. Los hospitales les ofrecen asistencia médico-quirurjico gratis. El gobierno costea o subvenciona los asilos, los cuales son instituidos por el Estado o por agrupaciones piadosas.

Los ancianos viven al aire libre, esto es, disfrutan todo el año de clima primaveral. La alimentación es de acuerdo con la edad.

Las causas de muerte son: hemorragia cerebral, las lesiones cardiacas y el cáncer; estas son las más frecuentes. Las neumonía es rara en nuestro clima.

Age Variations in Mitotic Frequency and Pattern of the Rete in Human Epidermis.

Z. K. COOPER, J. M. THURINGER, *and* A. A. KATZBERG, *Department of Pathology, Washington University School of Medicine, St. Louis, Missouri, and Department of Histology, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.*

In young individuals human epidermis is relatively thick, and the rete ridges are well developed. With advancing age it undergoes atrophy and is reduced to a few layers of cells, the rete ridges are lost, and, in sections, the dermo-epidermal junction becomes almost a straight line. These changes are accompanied by variations in the number and distribution of mitotic figures in the epidermis.

To study these variations, specimens of abdominal skin were collected at surgery from 50 individuals

who varied in age from 2 days to 77 years. In serial sections prepared from each specimen the number of mitotic figures encountered per 100,000 epidermal cells was recorded. The distribution of the mitotic figures within the epidermis, i.e., the percentage in the basal layer and that in the lower, the middle, and the outer thirds of the spinous layer was noted. The number of cells in mitosis increases from birth through the fourth decade and then remains relatively stationary.

Total mounts of the epidermis give a more accurate picture of the pattern of the rete than can be obtained from sections. By this method several square centimeters of epidermis can be examined, and in old epidermis the degree of atrophy can be determined. An attempt was made to correlate the number and distribution of mitotic figures with the pattern of the rete.

Effects of Prolonged Administration of Testosterone Proprionate on the Testicles in the Senescent Male.

J. J. CORDONNIER, *Department of Surgery, Washington University School of Medicine, St. Louis, Missouri.*

The effects of the prolonged administration of testosterone proprionate in varying doses on the testicles of 28 senescent males were studied by means of testis biopsies. Biopsies were taken before and at the conclusion of therapy. The majority were studied for a period of three months, 2 were observed over a six month period, and 4 over a four month period. The latter 4 had no biopsy taken prior to the administration of the drug. A dosage of 25 mg. of testosterone proprionate was given intramuscularly between three and seven times weekly, and the effects on the various individuals evaluated by microscopic sections. Of the total studied, 12 were interpreted as showing no change and 11 showed definite atrophy as manifested by a marked decrease to a complete loss of the germinal elements with some thickening of the peritubular connective tissue. A discussion is given of the various hormonal factors involved in the production of these findings. It is believed that the indiscriminate use of testosterone proprionate, without clear clinical indication, is to be condemned, as some permanent testicular damage might result.

Organization of a Geriatric Hospital Unit with Statistical Analysis of Geriatric Rehabilitation.

L. Z. COSIN, *United Oxford Hospitals Geriatric Unit, Cowley Road Hospital, Oxford, England.*

Results of the treatment of 781 patients admitted to Orsett Hospital Geriatric Unit over a twenty-six months' period are discussed *(Proc. Roy. Soc. Med.,* May, 1948). These results showed that 38 per cent of the patients were discharged, 14 per cent were rehabilitated long stay patients, while 39 per cent died. The period of hospitalization for 90 per cent of the cases was less than six months.

The long stay cases are analysed into those who were bedfast for the total period of hospitalization and those who were classified as ambulant, frail ambulant, and senile confusional types. The various staffing needs of the different sections of the Geriatric Unit are mentioned as a means of achieving economy in running the Unit and of effecting more efficient rehabilitation.

The Analysis of Geriatric Care is compared with the later Analysis of Geriatric Rehabilitation and the statistical methods by which this was achieved (with the cooperation of Professor Major Greenwood) are also discussed. The index of Permanent Bedfastness is defined and other proposed indices of hospital efficiency as far as geriatric (over 60 years of age) rehabilitation is concerned, are described.

Sympathectomy in the Management of Arteriosclerosis Obliterans: Results in 150 Consecutive Cases.

C. COSTELLO, *City of St. Louis, Department of Public Welfare, Hospital Division, 1515 Lafayette, St. Louis, Missouri.*

Lumbar sympathectomy has a proved value in several types of peripheral vascular disease, although its role in the management of patients suffering arteriosclerosis obliterans involving the lower extremities has not been thoroughly elucidated. This presentation, which is intended to help clarify the selection of patients, the diagnosis, and the indications for use of lumbar sympathectomy in arteriosclerosis, is based on experience with 150 such consecutive cases, and the technique of the procedure as well as adjunct therapy, operative mortality, and end results are discussed.

Histologic Changes in the Aging Cochlea.

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The literature is filled with many attempts to correlate histologic changes in the cochlea with hearing loss. The present report is an evaluation of these studies. The means by which different factors or agents are capable of producing deafness is not always clear. Aging, by itself, may not be as important as we are sometimes led to believe. A better understanding is necessary of the reasons for deafness in young and middle-aged groups before old age can be said to cause a definite hearing loss.

Management of the Older Employee With Medical Problems.

R. B. CRAIN, *Medical Department, Eastman Kodak Company, Rochester, New York.*

The care of people with chronic disease in an aging population is the greatest challenge facing medicine today. Its economic effect upon society cannot be estimated. The management of this group in industry is a many-sided problem.

The writer outlines his experiences of over thirty years in this field with employees of the Rochester plants of Eastman Kodak Company.

For many years past the company has experienced a stability of employment, resulting in a low labor turnover. Shifts in age distribution over the past twenty years are shown. The company's accident rate has been low. A table is given showing time lost by age groups because of illness.

Selective placement of impaired workers is based on job analysis, carried out by the Medical Department, in cooperation with the Wage and Standards and the Safety Departments. Description is given of the physical demands form in use and the technique of placement.

The importance of the periodic health inventory and follow-up, and health education for employees and supervision is stressed.

The method and facilities for the management of these major groups is outlined: 1. Personality disorders, 2. Cardiovascular diseases, and 3. Nutritional problems.

Group 2 (cardiovascular) is treated in more detail, to illustrate how older employees may, with suitable placement and medical supervision, be kept at work for considerable periods.

A statement is made regarding the company's policy of retirement, with provision for annuities and total disability. The need of preparation for retirement and the cultivation of hobbies is emphasized.

Whole Life Records, Research, and Service in Geriatrics and Gerontology.

C. W. CRAMPTON, *Sub-Committee on Geriatrics and Gerontology, Medical Society of the County of New York, New York 28, New York.*

Gerontologic research and geriatric service are profitably founded on whole life records. All life phenomena are dependent on antecedent causes and in turn offer an opportunity to modify the future to advantage. There should be developed a comprehensive basic plan of life examination for record, scientific research, medical service, and guidance. It should aid all purposes, persons, and use all facilities.

At present there are large masses of uncoordinated records of clinics, gymnasiums, camps, schools, Army and Navy, membership organizations, sanitoriums, and physicians. Coordination is feasible. Notable longitudinal records are being made by Keyes, Washburn, Sontag, and others. A basic form of life record for research and service should include the most significant anatomic, physiologic, and psychologic items as well as pathologic data. Additional items should be added for special purposes. Examination should be timed upon physiologic life epochs not chronologic age. A tentative schedule will be presented. Four good examinations during a lifetime,—at birth, puberty, marriage, and menopause alone might open a new epoch in research and human service. The active cooperation of national organizations interested in whole lives as well as diseases should be procured. This is a project.

Transurethral Resection of the Prostate.

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The author regards transurethral resection as the operation of choice for the average case of prostatism because of its safety, relative lack of suffering, and short hospital stay as compared to open operation. The latter should be reserved for those cases in which the transurethral operation is not feasible or in which it is hoped to cure a localized cancer of the prostate by radical removal.

While it has been alleged that the mortality of the various open enucleations of the prostate is now no greater than that of the transurethral operation,

this is not borne out by the facts. In cases collected from the literature before 1939 (before antibiotics were available, and before anesthesia and transfusion reached their present development), the mortality of enucleation was 6.6 per cent. In 2800 cases reported between 1945 and 1950, the mortality was 5.3 per cent. In contrast to this, the author and two associates performed transurethral resection in 1118 consecutive cases between July of 1946 (when they started using isotonic irrigating solution to prevent hemolysis) and October 1950 with 6 surgical deaths (0.53 per cent). This is roughly one-tenth the reported mortality of the open operations cited above and seems to establish the value of the operation. Confirmation of this view is had from the fact that Nesbit has reported 2400 cases with a mortality of 1.81 per cent, and Thompson has reviewed 11,000 cases with a mortality of 1.2 per cent.

Problems of Retirement.

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In order to understand these problems, we must first know how to evaluate the mature, adult individual, in other words a predominantly responsible and independent individual, and something of the expected deviations from this more or less ideal personality picture.

The retirement ages of individuals vary from 50 to 70, usually earlier in the skilled labor group, later in intellectual pursuits. At the time of retirement a person should be able to relinquish full-time productive work and to take on and develop his personal interests in leisure activities. However, the physical, mental, and emotional changes in the two decades indicated can cause distressing maladjustment in otherwise well adjusted people, which may lessen the individual's critical and objective judgment.

Retirement is dependent on the specific causes for retirement and on the individual's attitude towards retirement, and dependent also on the meaning the word has for the individual. Retirement itself can be conducive to a healthy atmosphere in an emotionally healthy individual or it can cause all the individual variations from psychosis to neurotic discontent, dependent upon the biologic and psychic equipment at the time of retirement.

Planning for retirement is the responsibility of the individual, the family, and the company for which he works, and preparations for it must be begun several years in advance of the expected date. It is a cooperative venture, the team consisting of the company representative, usually the industrial engineer or personnel manager, a psychiatrically trained social worker, the company physician, and the individual and his family.

Acute Intestinal Obstruction in Elderly Patients.

C. W. CUTLER, *Department of Surgery, Columbia University School of Medicine, New York, New York.*

This is a clinical study of 129 cases of acute intestinal obstruction in patients over 60, of average age 71. Many of these patients were suffering from chronic diseases of various types. The cases are analyzed and compared by etiologic groups comprising 35 hernias (11 femoral), 31 tumors, 26 adhesions, 11 foreign bodies, 10 volvuli, and 16 undetermined. Characteristics of each of these types of obstruction are shown as to symptomatology, progress, response to treatment, and results.

The importance of early diagnosis is illustrated and differential diagnosis considered, citing methods and difficulties. The necessity for rapid preparation and prompt surgical relief is demonstrated. Methods of preparation, anesthesia, and surgical procedures are compared as to indications and results. Hazards of protracted intubation are shown by 39 per cent mortality in operations within twenty-four hours, contrasted with 60 per cent for cases intubated over twenty-four hours.

While age and chronic disease contributed to 57 per cent early and late mortality (including 13 inoperable cases), the location, type, and duration of obstruction, pre- and postoperative treatment and time and nature of surgery are shown to be the most important factors in determining the results. Prompt surgery, directed toward emergency relief only, offered the best prognosis.

D

Clinical Problems in Gerontologic Rehabilitation.

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Rehabilitation of the aged aims to restore such persons to their fullest physical, mental, social, and economic usefulness. This definition clearly shows that the problem is more than medical and the aid of all ancillary specialists has to be enlisted to rehabilitate an aged person. In spite of the ever growing scope of specialization, there are a great number of morbid conditions which always happen to be "outside the field" of any specialist. It is the duty of the rehabilitation specialist to handle these heretofore neglected conditions and bring about as full a restor-

ation as the situation permits. Rehabilitation activities of the elderly aged group could be arbitrarily classified into three groups:

(1) Restoration of the obviously handicapped aged (hemiplegia, arthritis, fractures, and neuro-muscular diseases, et cetera).

(2) Rehabilitation of the chronically ill without signs of obvious disability (chronic cardiacs and pulmonary diseases, et cetera).

(3) Restoration of the elderly person who has no manifestation of a specific disease but whose physical fitness is impaired.

Clinical problems in the rehabilitation of such patients are discussed and proposals made for improved medical management of these patients.

Organizational plan of a proposed Gerontological Guidance Clinic is briefly outlined and discussed. The totality of such program is emphasized and it is pointed out that the physican, however important are his activities, alone cannot bring about complete rehabilitation in the sense of the definition quoted above.

Relation of Age to Wound Healing.

A. R. DALTON, R. LEMMER, *and* R. ANSCHUETZ, *Department of Surgery, Washington University School of Medicine, St. Louis, Missouri.*

The popular concept that the wounds of older patients do not heal as well as those of younger patients probably has its origin from Alexis Carrel and DuNouy. In the latter's book *Biological Time* (1937) it is stated that the rate of tissue repair is five times slower at 60 years of age than at the age of 10 years. Perusal of the data reveals these conclusions were based on studies on men of 20 and 40 years of age who were soldiers in World War I. They had surface wounds whose healing was measured by the rate of epithelialization and not by measurement of tensile strength. These conclusions, therefore, are not applicable to major surgical incisions whose healing depends upon the development of tensile strength.

In an attempt to examine this problem experimentally, we used adult rats whose ages were accurately known, selected with representation at the extremes of their life span. Uniform incisions and identical closures were performed on these rats and tests of the tensile strength of the wounds early and late in the postoperative period were done using the technic of Kobak and associates. No statistical difference in the tensile strength of the wounds in young and old rats could be found during the postoperative period. It is concluded that the tensile strength of healing abdominal wounds is not altered during the aging process.

Le Vieillissement de la Population dans l'Europe de l'Ouest et Son Effet sur la Population Active.

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L'évolution de la structure par âge de la population de l'ensemble de l'Europe de l'Ouest (Grande-Bretagne, Allemagne, Italie, France, Espagne, Pays-Bas, Belgique, Portugal, Suisse, Autriche), répartie en quatre grands groupes d'âges (0-19 ans, 20-39 ans, 40-59 ans, 60 ans et plus) a été la suivante:

	0-19 ans	20-39 ans	40-59 ans	60 ans et plus	Total
Vers 1900	42.2	29.3	19.3	9.2	100
		48.6			
Vers 1930	33.6	32.2	22.5	11.7	100
		54.7			
Vers 1950	32.6	28.8	24.8	13.8	100
		53.6			

On constate une diminution massive de la proportion des jeunes et un accroissement constant de la proportion des personnes âgées. Corrélativement, la proportion des adultes (20-59 ans)—qui représente l'essentiel de la population active—s'est accrue entre 1900 et 1930 pour diminuer ensuite. On constate également, à l'intérieur même de la population adulte, un accroissement de la proportion des personnes âgées de 40 à 59 ans, ce qui conduit à une augmentation de l'âge moyen de la population productrice, laquelle a des conséquences importantes dans le secteur industriel où le rendement de la production est lié directement à l'âge.

Si, pour l'ensemble de l'Europe de l'Ouest, la proportion des personnes âgées est de 13, 8%, elle est très différente selon les pays, en raison de la disparité de l'évolution démographique de chacun d'eux. Elle est, pour les chiffres les plus récents, de 16,3% en France, de 15,4 en Grande-Bretagne, de 13,8 en Allemagne, de 11,9 en Italie et de 10,4 en Espagne. Aux Etats-Unis, la proportion est actuellement de 11,6%. Elle est nettement plus élevée dans la partie la plus industrialisée de l'Europe de l'Ouest (Grande-Bretagne, Allemagne, France) que dans la partie à prédominance agricole (Italie, Espagne).

Les tendances les plus récentes et les calculs prévisionnels qu'il est possible de faire pour les dix ou vingt années à venir vont dans le sens d'une stabilisation (sinon même d'une diminution) de la proportion de la population adulte productive (20-59 ans) avec un accroissement très net de la proportion des vieillards. Les pays de la Méditerranée Occidentale

pèseront à leur tour très lourdement dans ce sens, en raison de la baisse très sensible de la fécondité qui s'y manifeste actuellement.

Quelques Problèmes Economiques Posés par le Vieillissement de la Population.

J. DARIC, *Institut National d'Etudes Demographiques, 23-25 Avenue Franklin Roosevelt, Paris 8e, France.*

Le "vieillissement de la population," c'est-à-dire l'accroissement constant de la proportion des adultes âgés et des vieillards, est un phénomène commun à toutes les populations de civilisation occidentale, mais qui se manifeste avec une intensité particulière dans l'Europe de l'Ouest. Il est, pour une large part, le résultat de la lutte victorieuse menée contre la mortalité de l'âge adulte et de la vieillesse. Cependant, un résultat aussi favorable pose une série de problèmes économiques et sociaux dont on n'a pas toujours mesuré l'importance, dans le présent et dans l'avenir.

Le fait que l'âge moyen de la population active s' accroît, pose, pour tous les pays où la structure industrielle est prépondérante, une série de problèmes relatifs notamment à la productivé de la main-d'oeuvre, à son adaptation à des besoins techniques nouveaux, à sa répartition géographique.

Le fait, également, que le fardeau se fait de plus en plus lourd, pour la population adulte, de subvenir, directement ou indirectement, aux besoins d'un nombre accru de vieillards conduit à la nécessité, à la fois économique et sociale, d'assurer aux personnes âgées, susceptibles encore de participer à la vie professionnelle, des travaux appropriés à leurs possibilités.

On examine, dans cette communication, l'essentiel des problèmes qui viennent d'être évoqués.

Qualitative and Quantitative Studies on Pherentasin, the Active Pressor Principle of Hypertension.

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A direct attack on the chemical abnormality occurring in hypertension has led to the demonstration of a pressor principle, pherentasin, in arterial blood of hypertensive patients, absent from normotensive individuals. The concentration of pressor material in each extract was placed on a unit basis for purposes of comparing types of hypertension as well as success in isolation procedures. The unit is defined as the amount of pherentasin which will, in three assays on 3 renal hypertensive rats, produce an average maximum elevation of diastolic blood pressure, at ten, fifteen, or twenty minutes after injection, exceeding the 2 per cent level of probability for normotensive extracts.

No correlation was found between height of the patients' diastolic blood pressures and the units of pherentasin estimated to be present. However, extracts from neurogenic and endocrine hypertensive patients had lower activity than renal hypertensive extracts. The highest concentrations were found in the 45 to 55 year age group, explained only in part by the greater number of individuals studied in this region.

Indications that a volatile pressor substance is present in many of these extracts have been added to the evidence that the active fraction is a primary amine. Additional studies on the pharmacology of pherentasin indicate that its action is blocked by certain sulfhydryl compounds but not by dibenamine.

Surgical Disease of the Mammary Glands in the Aged.

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This is a study of patients with surgical disease of the mammary glands who were past the menopause when first seen. It covers a period of ten years and shows the diminishing number of benign lesions in this age group. Because of this, it is extremely dangerous to procrastinate in the case of an elderly woman with a dominant lump of the breast, a discharge from the nipple, a recent retraction of the nipple, or a change in the contour of the breast.

The results of a study of axillary lymph node metastases in carcinoma of the breast in these patients will be described.

The Therapeutic Action of Glutamic Acid on Involutional Psychoses.*

J. DELAY, P. PICHOT, J. PUECH, *and* J. PERSE, *Hôpital Psychiatrique, 1, Rue Cabanis, Paris, France.*

The Industrial Nurse and the Older Worker.*

W. DEVLIN, *Industrial Nursing Consultant, Division of Industrial Hygiene, Public Health Service, Washington, D.C.*

The Significance of Blood Pressure Recorded by the Cuff Method.

L. DEXTER, *Medical Clinic, Peter Bent Brigham Hospital, and the Department of Medicine, Harvard University School of Medicine, Boston, Massachusetts.*

The cuff method of recording blood pressure provides a fairly accurate recording of systolic and diastolic blood pressures. The physiologically important pressure, however, is the mean blood pressure which the cuff method does not record. This pressure is not half-way between systolic and diastolic. It is the average pressure throughout the cardiac cycle.

The mean blood pressure is equal to the product of the cardiac output times the peripheral resistance. In hypertension, the cardiac output under basal conditions is normal. Therefore the mean blood pressure under these circumstances varies directly with the peripheral resistance.

What is the relationship of peripheral resistance to the disease process, i.e., cerebral, retinal, cardiac, and renal vascular lesions, these being the causes of disability and death in hypertensive patients and therefore the basic disease process which can therefore be denoted as hypertensive disease? This author has been unable to find any close relationship between peripheral resistance and the severity of the hypertensive disease process.

Conclusions are two-fold: 1) Just as it is impossible to define hypertensive disease pathologically, so is it also impossible to define it physiologically; 2) although hypertensive disease rarely occurs in the absence of an elevation of blood pressure, the severity of the vascular disease bears no relationship to the height of the blood pressure.

Experiments in the Education of Older Adults.

W. DONAHUE, *Institute of Human Adjustment, University of Michigan, Ann Arbor, Michigan.*

This paper reports the extension of adult education to provide preparation for aging and the utilization of educational methods by older people in the solution of their own problems. A description of the University of Michigan courses dealing with the problems of aging presented by means of classroom lectures, radio, and television will be provided, together with a discussion of the characteristics of the individuals who enroll in the courses and their evaluation of the outcomes. The use of the project method of teaching will be illustrated by a description of the activities of three groups of older people who studied respectively the satisfactions and dissatisfactions of older people with the church, the employment and training opportunities for women in a small midwestern city, and the methods for establishing an activities center for older people in a small community.

Morbidity From Cancer in Relation to Age.

H. F. DORN, *Biometrics Section, National Cancer Institute, Bethesda 14, Maryland.*

This paper discusses the relationship of the development of cancer to the aging process. It presents statistical data, based upon studies of morbidity from cancer in a number of large metropolitan areas scattered throughout the United States, showing the relative susceptibility of different organs and tissues to cancer at different ages and the variation in primary site and histologic type between the two sexes and between white and nonwhite persons. Some explanations for these variations are discussed including their bearing upon the rate of development of various forms of cancer and the possibility of detecting cancer at an early stage with present methods of diagnosis.

Senescent Defense Manpower:—Its Medical and Socio-Economic Implications.

G. C. DOWD, *Geriatrics Clinic and Research, Boston Evening Clinic and Hospital, Worcester, Massachusetts.*

With the increasing tempo of expanding defense production, the labor demands of industry are becoming more acute. Unemployment today is at its lowest since the end of World War II. In many industries, the need for skilled craftsmen is already critical. Upon reviewing the sources of man-power, the only substantial source of supply is the senescent man-power pool. A study of statistics on work performance, absenteeism, accident rate, and efficiency of older man-power during World War II, reveals that this group compares very favorably with younger age groups, (a few statistics will be quoted). Very many of these oldsters still have physical capabilities commensurate with job requirements. They were compelled to retire because of company policy at 60 or 65.

The program envisioned consists of many facets.

(1) On reaching the so-called retirement age, the employee undergoes an industrial type of physical examination in which the physical and mental requirements of the occupation are evaluated against the physical capacities. A special survey form has been designed for universal application. If the results are favorable, the employee continues in his occupation. If not, then a less exacting job utilizes

the limited capabilities. The survey is repeated as often as is indicated by circumstances of employment and physical capacity. In this manner, all concerned would acquiesce to an earnings-decrement system, especially if it were recommended by the long standing friendly personal physician of the employee. Such an arrangement would greatly help evaluate the calculated risk.

(2) A retired employee, seeking re-employment, would go through the same procedure as outlined in (1).

(3) Economically, the employee would benefit greatly because his earnings would be much greater than his pension; that would make for less financial dependence and a decrease in the burden of taxation.

(4) The older employee's morale would be heightened. He would still feel that he was a useful member of his community and not "put out to pasture to vegetate."

(5) Mental and physical senescent hygiene would be unmeasurably bolstered by continued activity under supervision. A healthy way of life in these spheres would be prolonged.

(6) A preventive health maintenance program and therapeutic regimen would be undertaken. Geriatric medical research during the last ten years has made substantial strides in an understanding of arteriosclerosis and its sequelae. Correction of dietary imbalances, weight control, limitation of atherogenic substances, and the amelioration of degenerative symptomatology have permitted many oldsters to continue in their respective occupations, despite arteriosclerotic pathology. In that connection we might mention judicious use of vitamins, thyroid extract, anabolic hormones, anti-spastics, assistive pharmaceuticals to secretary structures, physiotherapy, and sympathectomy, if and when one, or a combination of the above is indicated.

This author has rehabilitated some 792 patients during the last five years with a remarkable degree of success.

(7) An extensive educational program will be launched upon industrialists, labor groups, and industrial and personal physicians. This program is in the making.

Early Age Changes in Head Hair.

O. H. DUGGINS *and* M. TROTTER, *Department of Anatomy, Washington University School of Medicine, St. Louis, Missouri.*

A longitudinal study of structural characters of hair of 16 American white children (9 girls and 7 boys) is underway. Monthly samples (since 1930) from the vertex beginning at birth comprise the material.

The index or shape of the cross section drops sharply during the first 2 years of life. The area or size of the cross section shows a rapid and uniform increase during the first 3 or 4 years of life, a less rapid and less uniform increase during the next 6 years, and thence presents either a slow or no increase. The percentage incidence of medullation is very low at birth, increases rapidly during the first 7 months, decreasing from then into the second year, after which there is a general tendency to rise. The scale count per unit length of the shaft drops slightly but insignificantly during the first year with no change thereafter (there is a significant individual difference, however). The birefringence rises rapidly while the refractive index usually drops during the first 2 years of life; an age difference in refractive index is indicated and birefringence is characteristic for the individual.

Thus, these 5 characteristics of head hair present greater change within the first 2 or 3 years after birth than at any other time up to 20 years of age.

The Pathogenesis of Hypertensive Nephrosclerosis.

J. B. DUGUID *and* I. RANNIE, *Department of Pathology, University of Durham, The Medical School, Queen Victoria Road, Newcastle upon Tyne, I., England.*

A severe chronic nephropathy, morphologically similar to hypertensive nephrosclerosis of man, can be produced in rats by the administration of a diet containing 5 per cent by weight of acid sodium phosphate for six weeks, together with daily doses of 10,000 units of Calciferol for the first week of the same period. In the rats which die during or shortly after this treatment, the lesion in the kidneys is found to be a pure tubular degeneration, whereas in those that survive for nine months or more, there is a general disorganisation with changes in the glomeruli and blood vessels as well as the tubules, while in the severer cases there is often a pronounced cardiac hypertrophy. It is inferred from this experimental lesion that the condition we term hypertensive nephrosclerosis in man may not necessarily signify a primary vascular disorder, but may arise as the result of a primary tubular degeneration in the kidney.

The Prevalence of Pulmonary Emphysema Beyond Middle Age.

J. B. DUGUID, *Department of Pathology, University of Durham, The Medical School, Queen Victoria Road, Newcastle upon Tyne, I., England.*

Large sections of lungs, prepared by the method of Gough and Wentworth for the demonstration of pneumoconiosis, show that some degree of emphysema is almost universal in old people. The importance of emphysema and possible methods of assessing the functional impairment it causes are discussed.

The Syndrome of Longevity—A Psychosomatic Study of American Centenarians.

FLANDERS DUNBAR *and* FRANCIS DUNBAR, *Department of Physiology and Psychology, Cornell University, New York, New York.*

Records have been obtained relative to over 14 per cent of the white centenarians in this country reported in the 1940 census. These records have been combined with the records of centenarians who will be reported in the 1950 census. Of these records, it has been possible to analyze more than one-half in some detail.

Part I of this paper is devoted to general statistics, such as geographic distribution, sex distribution, marital status, occupational distribution, heredity, illness record, and general environmental and cutural setting. Relative to these topics some information has been included from the less adequate records, but the inclusion of such material does not change the picture.

Part II of this paper is devoted to a tentative personality profile of centenarians, the traits which they have in common as well as the traits which place them in sharp contrast with other population groups that have been subjected to a similar type of analysis. Tentative conclusions are drawn as to the psychosomatic traits which tend to favor longevity.

Arteriosclerosis and the Thyroid Gland.

N. DUNGAL, *Department of Pathology, University of Iceland, Reykjavik, Iceland.*

Observations based on over 2,000 autopsies in Iceland reveal a lower degree of arteriosclerosis, particularly of the aorta, than is seen on the continent of Europe. Such comparisons are very difficult to make since no accepted scale is available for that purpose. The author must, therefore, to a considerable extent depend on his personal experience and impressions. The difference between the part of Austria in which goiter is prevalent (Steiermark) and Iceland was very striking, arteriosclerosis being much more pronounced in the Steiermark than in Iceland. Whereas marked calcification of the aorta is a frequent finding in individuals in their fifties in the Steiermark, it is not rare in Iceland to observe old people with a smooth aorta. The condition of the thyroid gland was found to present a corresponding difference. Thus in the Steiermark hypothyroid goiter is endemic, whereas in Iceland the average weight of the thyroid gland is only 13 to 14 gm. and the iodine content of the gland normal.

There are several indications that iodine deficiency plays an important part in the production of arteriosclerosis and that a normally functioning thyroid gland is of fundamental importance for preventing and delaying arteriosclerosis.

The Source of Renal Vaso-Active Substances.

F. W. DUNIHUE, *Department of Anatomy, University of Vermont College of Medicine, and State Agricultural College, Burlington, Vermont.*

Although there may be some question concerning the details, it is generally believed that the kidney produces, either directly or indirectly, substances having vasopressor and vasotropic activity. There is, however, no direct method of localizing the histologic origin of these vasoactive materials. Accordingly an attempt has been made to determine the source of these renal substances in the cat by the indirect method of comparing structural changes in the kidney with assays of plasma renin and VEM. This approach has been pursued in cats subjected to the following experimental conditions: renal ischemia, cellophane perinephritis, cold room stress, bilateral adrenalectomy, shock, and support with DCA, cortisone, or adrenal cortical extract following bilateral adrenalectomy.

A positive correlation between the size of the Golgi apparatus of the pars recta cells of the proximal tubule and the plasma VEM level was observed in preliminary experiments. Assuming that an increase in size of the Golgi apparatus is an indication of secretory activity, the cells of the pars recta may be source of VEM. Likewise a correlation between the number of granular cells in the juxtaglomerular apparatus (JGA) and the plasma renin level was found. This finding is consistent with Goormaghtigh's hypothesis that the JGA cells secrete renin.

Neoplasia in Mice Without the Mammary Tumor Agent. Significance in Relation to Aging.

T. B. DUNN, *Pathology Section, National Cancer Institute, National Institutes of Health, United States Public Health Service, Bethesda 14, Maryland.*

The incidence of cancer both in man and experimental mice is so closely correlated with age that neoplasia seems an inevitable development if life is sufficiently prolonged. Yet certain forms of cancer in both species may develop in relatively young individuals. Whenever neoplastic conditions characteristic of an earlier age period can be reduced, it becomes of interest to know what the effect will be on those surviving to more advanced ages.

An unusual opportunity has been given to experimental pathologists to observe such a condition. The mammary tumor agent can be removed from certain inbred strains of mice. Female mice with the agent usually die before the age of one year from tumors of the mammary gland. These tumors in young mice usually show a characteristic morphology. When the agent is removed, the mice survive to a more advanced age, and the incidence of various morphologic types of mammary tumors is significantly altered. The histology of these various types of mammary tumors will be shown by photomicrographs.

Prolongation of life in these old mice has also allowed for the development of tumors in other organs, and some of these tumors have not previously been observed in the same inbred strains when the tumor agent is present.

The Age Factor in Neoplastic Infection.

F. DURAN-REYNALS *and* B. A. BRIODY, *Department of Microbiology, Yale University, School of Medicine, New Haven, Connecticut.*

Studies on avian cancer, mostly on the Rous sarcoma, have shown that, in the course of aging, a resistance develops in the host against the causative viruses. The first manifestation of this resistance is the induction of tumors instead of non-neoplastic, destructive lesions, such as produced by the virus in embryos and newborn chicks. After this event, the age factor keeps on acting on what is now a real cancer virus, and causes it to vary or mutate, each mutation involving the induction of a different type of cancer. Later, through further effects on the virus, the age factor suppresses fundamental attributes of malignancy, namely metastases formation, transplantability by cells and by filtrates (masking of the virus), and steady growth (tumor regression). Other studies, from our and other laboratories, have shown that the viruses of avian cancer have a clear epidemiologic pattern and that immaturity of the host is a favoring or indispensible condition for infection to take place.

Briefly, then, the natural history of avian cancer may well be the following: the causative viruses, behaving fundamentally as ordinary viruses, infect the host at an early age and, after having induced or not a recognizable non-neoplastic disease, remain latent in that host till the later reaches a certain age (cancer age), in which the virus manifests itself as a cancer virus, being capable, through variation, of inducing a great variety of tumors or leucoses.

These findings pose several problems, of which the most important is whether, under certain conditions, ordinary viruses can induce cancer.

E

Social Factors in the Adjustment of the Aged Among the Hutterites.

J. W. EATON *and* T. PLAUT, *Department of Sociology and Anthropology, Wayne University, Detroit, Michigan, and Department of Social Relations, Harvard University, Cambridge, Massachusetts.*

The Hutterites are an Anabaptist religious sect of Germanic ethnic origin living in prosperous and technologically advanced agricultural communal villages in the Western United States and Canada. They are being studied because of their reputation for unusually good mental health. Many of the problems of aging commonly found in our society are rare in this primary group sub-culture. The incidence of psychosis and neurosis is quite low. The aged are generally well-adjusted in this predominantly patriarchal although youthful society, with more than half of the population under 15 years of age. The aged generally retain a feeling of usefulness. They are not coerced to retire and they lose little prestige when physical limitations require the reduction or cessation of work. The community provides adequate physical and medical care. The aged have complete economic security because the communal nature of the society assures support to everyone. Uniformity of dress and minimal emphasis on personal appearance fosters reduced awareness of the physical manifestations of aging. Strong religious sentiments and a faith in a life hereafter tend to reduce the fear of death. This is a preliminary report. Psychiatric interviews, psychologic tests, anthropologic and census data are being used in this study.

The Diagnosis and Treatment of Patients with Arteriosclerosis Obliterans—Evaluation of Patients for Sympathectomy.

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A brief review of the distinguishing features of the differential diagnosis of arteriosclerosis obliterans and a scope of the problem will be presented. Also a review of pertinent statistics in the recent literature concerning the use of lumbar sympathectomy for the treatment of arteriosclerosis obliterans and the indications and results of such treatment will be given.

Certain cases of advanced arteriosclerosis, especially in those without evidence of normal vasoconstriction, sympathectomy would be detrimental because the blood would be shunted directly into the veins through the opening up of numerous small arterio-venous anastomoses. While certain cases of gangrene, or impending gangrene, may be aided by sympathectomy, perhaps more patients, for the above reasons, will get worse following sympathectomy, if they are of this severe type, especially if they show many of the contraindications which will be listed and discussed.

The use of various medical and chemical drugs as blocking agents and for their effect on relieving vaso-spasm will be discussed, but so far, no really adequate drugs are available for oral use, particularly in the treatment of arteriosclerosis obliterans.

A few of the more simple tests which would aid in deciding whether there would be a beneficial response from sympathectomy will be described. Before sympathectomy is considered, there must have been evidence of arrest or improvement in the process on a period of conservative therapy and not a regular or rapid progression of symptoms, despite the best of conservative treatment. This treatment outline will be given in more detail and an attempt will be made to outline those measures and tests which are helpful in deciding what are the indications and contraindications for the use of sympathectomy in the management of peripheral vascular disease, particularly arteriosclerosis obliterans. There is a brief discussion of the patients treated in our group by these methods and the results.

Aging Changes in the Human A-V Node, Bundle, and Bundle Branches.

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Fifty-five formalin-fixed hearts of various ages were sectioned in a manner devised by Lev, Widran, and Erickson. The sections were stained with hematoxylin and eosin. In addition, 13 hearts of various age were similarly cut and fixed in either 10 per cent formalin, Zenker's, Susa's, or Rossman's fixatives. These sections were stained with hematoxylin and eosin, Weigert's elastin-van Gieson, Hortega's reticulum, Hotchkiss' glycoprotein, Heidenhain's azan, and Mallory's phosphotungstic acid hematoxylin.

These studies showed that there are certain differentiating characteristics common to the entire system and certain differentiating characteristics in each part of the system. The entire system is differentiated by (1) the endothelial-lined sheath, (2) the lesser number of myofibrils, and (3) the increased amount of elastic tissue. The node is further differentiated by its reticulated structure and the small size of its fibers. The latter characteristic pertains to the bundle as well. The left branch is further characterized by the large size of its fibers in the distal four-fifths and the sharp reticular component of its basement membranes. The right bundle branch has no further differentiating characteristics. These facts favor the concept that these structures are histologically specialized.

Some Characteristics of the Skeleton of the Senile Rat.

H. M. EVANS, C. W. ASLING, *and* M. E. SIMPSON, *The Institute of Experimental Biology and the Division of Anatomy, University of California School of Medicine, Berkeley, California.*

Studies on aging in the rat skeleton have included measurement of skeletal growth and its arrest, determination of the time of various epiphyseo-diaphyseal fusions, and histologic examination of the age changes in bone and cartilage.

It has been erroneously maintained that skeletal maturity (as indicated by bony fusion of epiphysis with diaphysis) does not occur in rats, and therefore that growth is continuous throughout life. In females of the Long-Evans strain the majority of bones show fusion of at least one epiphysis between 3 or 4 months of age. Those bones which have only one epiphyseal ossification center exhibit epiphyseal fusion early, i.e., at 3 months of age. Bones with two epiphyseal centers, of which one fuses and the other remains patent, undergo slowing of growth after 3 months of age, and complete cessation of growth by 6 to 8 months. It is remarkable, however, that one epiphyseal cartilage plate remains, although not contributing to further growth, and although closure may occur by 2 years of age, it may be delayed beyond 3 years.

Both growth and epiphyseal fusion can be arrested

prematurely by hypophysectomy. Growth is restored by growth hormone; if the injections be continued it may thus be sustained for a year or more beyond the normal age of cessation. The bones become gigantic, and their epiphyseal plates maintain a cellularity resembling that in young animals. Growth hormone has virtually no effect on epiphyseal fusion, which is restored by thyroid hormone. Even precocious bone aging may be induced by thyroid hormone, which on the other hand has only slight growth-stimulating effect.

The Primary Causes and the Secondary Symptoms of Aging.

H. v. EULER, *Vitamin Institutet, University of Stockholm, Stockholm, Sweden.*

We know of many chemical and physical variations which occur during aging, but the central and important problem of whether these variations are the causes or the consequences of senility is still under discussion. We assume that the decrease in the intensity of the central metabolic and nervous reactions begins in man and in higher animals after the first quarter of the life span, as soon as the organism has lost its faculty for evolution and growth, and thus its faculty for synthesis and regeneration, which is closely connected with cell division.

Many of the low-molecular ergones (coenzymes, hormones, and vitamins) influence growth, but as their formation and functions depend on governing regulators, they cannot be directly connected with the primary causes of aging. However, the governing hormones, e.g., the gonadotropic hormones of the anterior pituitary gland, are highmolecular proteins; their chemical changes seem not to be reversible, and of their regeneration we do not know more than we know in case of the regeneration of brain and nerve cells.

The often discussed cause of aging may be formulated as follows: The highmolecular governing hormones of the organism undergo a fall in chemical energy, and according to a general thermo dynamic law, they have the tendency to increase their entropy. After the growth period the body cannot compensate for the loss of the growth hormone by synthesis.

Assuming that the decrease of governing hormones in the brain and in the nerves contributes the primary cause of aging, we also see a way to the understanding of the very important emotional influences affecting the processes combined with aging.

F

Health Status and Health Service Needs of Old-Age and Survivors Insurance Beneficiaries.

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Based on field surveys of old-age and survivors insurance beneficiaries, it is estimated that from two-thirds to three-fourths of the men and women currently receiving old-age insurance benefits are incapacitated. From one-half to two-thirds of all male beneficiaries gave ill-health as the reason for their retirement during surveys in some 20 cities over the period 1940-1947. In a more recent survey, beneficiary couples were found to have spent on the average $160 for medical care in the survey year. One-fourth of the couples spent as much as $200 to $1,600. To meet large medical expenses, aged beneficiaries received frequent assistance from relatives and drew heavily on assets. For aged couples having medical expenses of $200 or more, it is estimated that about one-half either had no assets or would be drained of all assets (other than real estate) within a year or less, if the withdrawal of assets continued at this annual rate.

Of the total married couples where one or both were hospitalized during the year, 64 per cent incurred medical expenses of $200 or more. Only one out of 12 old-age beneficiary groups having a member hospitalized had any form of hospitalization insurance.

Addition of hospitalization benefits as reimbursement through State-administered plans to hospitals furnishing services to insured old-age and survivors insurance beneficiaries has been proposed. The initial annual cost of this hospitalization program is estimated to be less than 0.2 per cent of taxable payrolls; the cost would be expected to rise to 0.2 or possibly 0.3 per cent. Of the nearly 7 million estimated to be eligible about two years from now—in the middle of 1953—almost 5.5 million would be persons in ages 65 and over.

Accidents Are a Problem to the Aged.*

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The Epidemiology of Accidents to the Aged.*

T. FANSLER, *Home Safety Division, National Safety Council, 425 North Michigan Avenue, Chicago 11, Illinois.*

The Influence of Age on Cerebral Metabolism and Blood Flow.

J. F. FAZEKAS, *and* R. W. ALMAN, *Georgetown University School of Medicine, Washington, D. C.*

Determinations of cerebral vascular resistance and cerebral metabolic rate were conducted on patients between 23 and 92 years of age. The effects of vasodilator drugs on the cerebral functions were also investigated. It was noted that, without selection of patients, there was a definite diminution in cerebral blood flow and metabolism with a concurrent rise in cerebral vascular resistance from decade to decade until the sixth decade, after which there was no further significant change in these functions. It was repeatedly observed that in the diminished cerebral metabolism in the aged there was no evidence of cerebral hypoxia in spite of a concomitant diminution in cerebral blood flow; even in clinically advanced cerebral arteriosclerosis, the cerebral venous blood failed to show marked unsaturation. Although cerebral metabolism and blood flow are on the average reduced in the elderly, the diminution of these two functions showed no consistent relationship in individuals. The administration of 5 per cent CO_2 by inhalation often failed to influence appreciably the cerebral vascular resistance; this was most frequently noted in clinically marked arteriosclerosis. It was also found that various pharmacologic agents, whatever their effect on the cerebral blood flow, did not significantly influence the cerebral metabolic rate even when this had been abnormally low.

In view of these findings, it is probable that the diminished cerebral metabolism in the aged is not secondary to the vascular changes usually present. The rationale of attempting to improve chronic cerebral metabolic depression without hypoxia merely by altering cerebral hemodynamics is questionable.

Physical Restoration of the Chronically Ill and Aged.

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The outlook for the chronically ill and infirm aged patient without financial resources is, indeed, quite tragic. For years, public institutions responsible for their care have been inadequate and were identified as "poor houses," "almshouses," etc.

Allegheny County, which includes Pittsburgh, with institutions at Woodville and Mayview, is now an exception. In the fall of 1946 a rehabilitation service was introduced taking its rightful place with other specialties such as, medicine, surgery, neurology, etc.

With no similar program existent except in the Armed Forces or Veterans Administration our efforts were entirely on a trial or error basis. Using equipment built jointly by the patients and personnel, physical and emotional restoration was directed toward the desired end point, i.e, economic or physical independence, or both.

Our patients present the same infirmities as a cross section of any other urban population. The willingness of our "oldsters" with cooperation of the medical staff has demonstrated the surprising value of a rehabilitation service devoted to the restoration of dependent chronically ill and infirm aged people in a public institution.

Our results indicate that:

25 per cent derived no measurable physical benefit.

75 per cent regained some or all lost function, of whom ⅓ became ambulatory in the institution, ⅓ returned to their homes, ⅓ returned to jobs.

The Hospital Nurse.*

M. FILSON, *University of Minnesota Hospital, Minneapolis, Minnesota.*

Aging of Connective Tissue and Malignant Growth.

J. FIRKET, *Institut de Pathologie, Hôpital de Bavière, Liège, Belgium.*

A survey was made of the incidence of sarcoma in a relatively stable population numbering 1,500,000 individuals. Information was available regarding the age distribution in this population. The investigation was based on data provided by a central pathohistologic registry.

A total of 763 cases of sarcoma was encountered for this population over a twenty year period. A study of the age distribution of these malignant tumors, arranged in age groups of 5 years each, showed an increase in sarcoma incidence from 1.62 to 6.95 per 10,000 individuals from the newborn period until the age of 50, and a rise from 10.49 to 15.50 per 10,000 between the ages of 50 and 90 years.

Aging has particularly been studied with regard to connective tissue. The collected data (apparent dehydration, changes in colloid phases and in tissue permeability, special processes of degeneration, changes in organic calcium complexes located at the cell surface) must be compared with the facts and

hypotheses concerning malignant transformation of connective tissue.

For statistical and experimental purposes the sarcomas must therefore be classed in various groups. Lymphoid and bone sarcomas are both influenced in addition to other factors, by endocrinologic factors peculiar to each of them. Interstitial, fibroblastic, polymorphous, and reticular sarcomas cannot be so homogeneously grouped. Because of their deep location sarcomas are less exposed to external carcinogenic factors than are most epithelial cancers (the exposure to carcinogenic factors is undoubtedly of importance for the increased incidence of surface carcinomas with age). On the other hand the sarcomas may be regarded as being subjected to a higher degree to the effect of changes in the blood composition, and such changes are easier to control.

Gallbladder Disease Above the Age of 70.

H. C. FISHER, *Department of Surgery, University of Colorado School of Medicine, Denver, Colorado.*

One hundred cases of gallbladder disease in patients over the age of 70 years will be reviewed with special emphasis upon the primary pathologic diagnosis, upon the hospital mortality in those operated upon as compared with those not operated upon, upon the results of treatment in patients with acute disease as compared with those suffering chronic disease, and finally, upon the primary cause of death in the fatal cases occurring in the hospital. This experience will be used to emphasize the ability of older patients to withstand major surgical procedures provided they are properly prepared for operation, the relatively high incidence of perforation of the gallbladder, the uncertain course and dangers associated with suppuration of the biliary tract and its complications, and finally, the need for early operation in most patients with cholelithiasis regardless of age.

Building Low Cost Diets of High Nutritional Value.

K. E. FLACK, *New York State Department of Mental Hygiene, State Office Building, Albany, New York.*

State institutions as a whole have much the same nutritional problems. The solution of these may be different but the goal is the same — better dietaries for the patients. Stringent economy is essential; therefore, interest is centered on the nutritional value of foods purchased. In the New York State Department of Mental Hygiene the dual objectives of our nutrition program have been to develop a high standard of food preparation and service and to improve foods utilizing inexpensive food stuffs rich in proteins, vitamins, and minerals.

In order to do this recipes must be standardized and cooks trained to use the formulas. In our food service training school over 400 cooks have completed courses in modern food preparation methods. Standard formulas have been developed using such products as dry milk solids, soy flour and grits, wheat germ, and brewers yeast. A concentrated complete diet has been developed for spastic and idiot children which simplifies the feeding problem and may well be applied to aged patients requiring spoon feeding.

An adequate balanced diet, scientifically planned in terms of nutritive and caloric values according to each patient's needs and served attractively, may well be the first step in improvement of health and well being, both important elements in the department's concept of total treatment.

The Use of Nicotinamide in Cerebral Arteriosclerosis.

J. FLEETWOOD, *Proby Square, Blackrock, Dublin, Ireland.*

A short series of patients manifesting various symptoms referable to cerebral arteriosclerosis is reviewed. Certain of these symptoms, notably the mental changes, also occur in pellagra and it was believed that this similarity might form the basis for therapy.

Each patient received 500 mg. of nicotinamide or nicotinic acid daily for five days and then 200 mg. daily until improvement was established or no result seemed likely. Small doses of potassium iodide and aromatic spirits of ammonia were also given throughout treatment.

Patients in whom mental symptoms — depression, confusion, and irritability — predominated improved considerably while those in whom hyperpiesis was marked showed little or no change.

It is believed that the results obtained would justify further investigation on a larger scale, and this work is proceeding.

Treatment of Patients With Carcinoma of the Prostate.

R. H. FLOCKS, *Department of Urology, State University of Iowa, Iowa City, Iowa.*

Based upon a series of 854 patients with carcinoma of the prostate seen at University Hospitals from 1926 to 1945 and upon a later series of patients treat-

ed with various types of surgical and endocrine therapy, an outline of treatment for patients with carcinoma of the prostate is given. Recent advances in our techniques for radical surgery, for irradiation therapy, and for hormonal therapy for carcinoma of the prostate are described and the results to be obtained from such therapy indicated. Recent investigations upon the relationships between the pituitary and adrenal glands to endocrine therapy of carcinoma of the prostate are given. The effects of variation in dosage of estrogen and the effects of other steroids and ACTH in these patients are described.

Preoperative Preparation and Postoperative Care of the Aged.

F. F. FOLDES, *The Departments of Anesthesia of the Mercy Hospital and the University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania.*

Because of the more or less extensive anatomic and physiologic changes present in the aged organism, geriatric patients require greater care in their preoperative preparation. The cardiovascular and respiratory systems need careful attention. Not only should decompensated patients be digitalized, but digitalization has to be seriously considered even in the absence of congestive failure if there are indications of decreased cardiac reserve. An effort should be made to improve tidal volume and vital capacity by clearing up chronic infection and instituting breathing exercises. Anemia, dehydration, changes in blood pH, and deviations from the normal electrolyte pattern have to be corrected. Subclinical vitamin deficiencies are also more common in the aged. Kidney and liver function should be investigated because of their bearing on the choice of sedatives, analgesics, and anesthetic agents.

Postoperatively, prevention of respiratory and thrombo-embolic complications and the maintenance of adequate fluid, electrolyte, and protein balance are important. Old patients usually have an increased sensitivity to depressants; therefore, the cautious use of sedatives and analgesics is recommended. Measures like postoperative intercostal block, i. v. procaine, and i. v. alcohol will markedly decrease the need for analgesics and sedatives. Encouragement of deep respirations, clearing of the tracheo-bronchial tree by coughing, the use of blow bottles, regular change of position, frequent movements of the lower extremities, and early mobilization will tend to decrease postoperative complications. When indicated, tracheo-bronchial aspiration, following local anesthetization of the pharynx and larynx, must not be delayed. Preventive use of antibiotics, bilateral femoral vein ligation, or heparinization should be considered in appropriate cases.

Over-All View of Nursing Home Standards.*

M. R. FRAME, *402 North Holmes Avenue, Indianapolis, Indiana.*

Industrial Medical Aspects of Aging.

S. C. FRANCO, *Consolidated Edison Co., Inc., 4 Irving Place, New York 3, New York.*

In the past fifty years, the average life expectancy of the American people has increased from 49.25 years to 67.5 years. As a result of this increased life expectancy, the number of persons in our nation 65 years of age and over has quadrupled since the turn of the century, while the over-all population figure has only doubled. Today 1 out of 12 persons in our country is over 65 years of age; by 1975 this number will soar to 1 out of every 9 persons.

The increase in average life expectancy has not been associated with a proportionate increase in working-life expectancy. The gap between retirement and death now stands at 5.5 years, about double the length in 1900. Under the present trend it will have tripled by 1975. Industry, if it continues its present retirement practices, will be faced with a seriously depleted labor pool and top-heavy pension costs. The individual worker will be faced with increased years of inactivity, with a drastically reduced income, under conditions which are psychologically and physically degenerative.

The above facts raise the question of how these men can be kept as productive members of the nation's manpower pool. To meet this problem Wittmer of the Edison Company has proposed the establishment of a Retirement Panel to review each member coming up for retirement with the purpose of continuing in industry beyond age 65 workers who are physically and productively able. This panel would be composed of an executive representing the employee groups and an executive representing industrial relations activities. The decisions on retirement would be made on the basis of an efficiency report submitted by the worker's department and a report on the employee's health status submitted by the medical department.

The program would possess two phases, one concerned with the rehabilitation of workers who are chronically disabled and the other with the detection and prevention of disease. In connection with the rehabilitation program, selective placement would be carried out by a Disability Panel. Such a panel is already in existence at Consolidated Edison.

The second and larger phase of the industrial health program concerned with the detection and prevention of disease, would have as a major feature a periodic physical examination beginning at the age of 40. A multiphasic screening examination that util-

izes certain laboratory procedures, without accomplishing a complete physical examination, has been advocated as a means of selecting cases which should undergo more detailed examination.

Why Retire Skill and Experience at 65?

S. C. FRANCO, *Consolidated Edison Co., Inc., 4 Irving Place, New York 3, New York.*

American industry is today faced with the problem of what it will do for, and with, the aged worker. Due to the increasing percentage of older people in our population, this is a problem which is becoming progressively more serious. Within the next few years, in a period of military conscription and expanded production, it may very well become industry's number one concern.

To meet this problem, industry must undertake a vast reappraisal of its present practices concerning retirement, employee training, and employee health programs. If it does not, it may be found guilty of sending valuable workers into non-productive inactivity via the retirement or disability routes.

Retirement, often detrimental to the individual physically, psychologically and economically, in many cases unnecessarily deprives industry of a worker's skill and ability which are in no way diminished by his advanced age.

Our aged citizens are valuable to industry and society, and it is our responsibility to devise methods whereby they can be continued as full-time industrial citizens past age 65.

Diseases of Senescence and Old Age and Biologic Reinvigorating Methods.*

A. FRASCHINI, *Piazza Castello 23, Milan, Italy.*

Stress Responses to the Administration of ACTH and to the Ingestion of Glucose as a Function of the Aging Process.

H. FREEMAN, F. ELMADJIAN, G. PINCUS, *and* L. P. ROMANOFF, *The Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Massachusetts.*

Studies have been made of the adrenocortical activity of 80 normal males ranging in age from 20 to 93 years. To activate the adrenocortical mechanisms we have used: (1) a stimulant which acts directly upon the adrenal cortex, i.e., a 25 mg. injection of ACTH, (2) a stimulant which acts upon the adrenal cortex indirectly presumably via the anterior pituitary, i.e., glucose in the shape of an Exton-Rose glucose tolerance test. The indices measured were blood lymphocytes and eosinophiles and urinary 17-ketosteroids, cortin, sodium, potassium, and uric acid. The influence of aging upon the degree of adrenocortical reactivity is discussed and the two types of stimuli compared.

The Philadelphia Story On Geriatrics.

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Philadelphia, a medical center, is just beginning to recognize the problems of its higher age group. But the approach of the city to this civic need is not as yet adequate.

The problems associated with old age can be divided into five groups: (1) organizational, (2) educational, (3) recreational, (4) research, (5) medical. The organization, education, and recreational facilities for the old population have a firm foundation mediated to a greater or lesser extent through a special division of the Philadelphia Health Council. There is the usual assortment of religious, union, profit and non-profit institutions, aligned in a rather inadequate type of domiciliary care. Some slight recognition in medical teaching has been made, a course in Geriatrics being given at a medical school since 1943. Research seems to be wholly freelance.

Minor agencies rather than major planning seem to be the keynote of this Philadelphia story. Some trends beginning to appear will probably offer an opportunity for systematizing the available amount of information. A notable effort has been made to combine the clinical aspects and the other approaches to the problems of old age. Various major movements and Philadelphians participating in them are creating an awareness throughout the city of what is needed. As in other cities, this will probably succeed when a focal center is created which is devoted to research, integration of ideas, and direction of medical approaches. The inadequacies of the present time are realized, creating an awareness which will be met in a comprehensive manner.

Steroid Hormones and the Aging Human Heart.

R. D. FRIEDLANDER *and* R. M. PERLMAN, *Institute of Endocrinology and Gerontology, San Francisco, California.*

For several years divided opinions and controversy have dominated the thinking of interested specialists concerning the effects of steroid hormonal therapy on cardiac musculature. More recently, Nahum,

Geller, Levine, and Sikand demonstrated that pregnenolone, in concentration of 100 mg. per cent, depressed contractility and lowered threshold in isolated preparations of papillary muscle of the cat, and increased rhythmicity in the intact dog heart. In the latter, progesterone lowered the threshold of excitability, producing spontaneous extrasystoles.

An analysis of pre-existing literature and thought representing various facets of opinion(s) is presented by the authors of this study, who offer additional pertinent clinical and electrocardiographic data gathered from many patients with varying syndromes during more than five years of time. Accumulated evidence favors those observers claiming that various steroids affect the human heart.

Role of the Acute General Hospital in the Care of the Aged.*

S. L. FRIEDMAN, *Mount Sinai Hospital, 1800 East 105th Street, Cleveland, Ohio.*

Desoxycorticosterone Acetate (DCA) in the Experimental Study of the Etiology of Essential Hypertension.

S. M. FRIEDMAN, *Department of Anatomy, University of British Columbia, Vancouver, British Columbia, Canada.*

Following the observation that DCA produces an elevation in the blood pressure of many species including man, the mechanisms involved have been explored with the idea that the synthetic steroid might have a natural counterpart and so play a role in the etiology of certain types of essential hypertension. Studies have been carried out along two lines: 1) the site of action of DCA and 2) inhibition of this action.

With regard to the first aspect of the problem, the following observations have been made: (a) DCA causes a pattern of disturbed renal function similar to that seen in essential hypertension, (b) the rise in blood pressure produced by this steroid antedates the renal disturbance, (c) intensification of the renal damage is not paralleled by a further rise in blood pressure, and (d) the elevation of blood pressure can occur in the absence of both kidneys.

As a result of these studies an extrarenal site of action for DCA has been postulated, but, since the kidneys are affected, it was also suggested that they are involved in the active metabolic conversion of the steroid and are damaged in the process.

Following this, it was shown that animals exposed to large amounts of DCA may sometimes not recover—i.e., the process is not always reversible. A proportion of the animals develop a sustained hypertension which lasts indefinitely after cessation of all treatment. This sustained hypertension would seem to be closely related to essential hypertension since it is not dependent on any anatomic renal damage.

With regard to the second aspect of the problem, a large number of substances have been tested for their possible inhibitory action against the cardiovascular-renal effects of DCA. All have been negative, except for a potent adrenal cortical extract, Lipo-Adrenal Cortex, and pitressin. The activity of the former adds support to the concept that the adrenal may liberate anti-pressor material, while the activity of the latter supports Heinbecker's suggestion that hypertension may result from a relative preponderance of pituitary eosinophiles over basophiles as a result of posterior pituitary change. These latter findings suggest that reversal of the hypertensive process may eventually prove feasible.

Retirement and the Meaning of Work.

E. FRIEDMANN, *Committee on Human Development, University of Chicago, Chicago 37, Illinois.*

The adjustment problem of the older person in our society is frequently complicated by his withdrawal or retirement from the activity which has occupied a major part of his adult life—his work. His work has filled many functions in his life, many of which he may not have been aware of until faced with the possibility of losing it. It gave him income and, in return, took a certain amount of his time and physical efforts. It defined a pattern of association for him and helped to determine his status in his community and family. It may also have offered him a source of new experiences and a chance to be creative.

To the extent that the individual has become aware of these functions, his work has had certain meanings for him. If these meanings are important to him, then their loss or unsatisfactory replacement in retirement creates a major adjustment problem.

A frame of reference and a methodology for the analysis of the meaning of work, developed by Robert J. Havighurst and Friedmann, are presented. Several investigations using this approach among groups of skilled, unskilled, and semi-skilled workers, white-collar workers, professionals, and small businessmen are discussed.

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Further Investigations of the Age Changes in the Annulus Fibrosus Mitralis.

T. GEILL *and* W. KIÆR. *De Gamles By, Nørre Alle, Copenhagen, Denmark.*

The present study was undertaken with the purpose of investigating in greater detail the histologic changes leading to the development of calcification of the left annulus fibrosus. The investigation included histologic examinations of the left annulus fibrosus from 230 elderly individuals, the histologic sections in each case being made from the same site of the annulus. Sections of the annulus fibrosus from 5 younger women, who showed no sign of heart disease, served as controls.

Out of 5 women over 80 years, without macroscopic annulus calcification, only 1 showed a normal histologic picture. In each of the other 4 cases, the annulus fibrosus was more or less thickened and on histologic examination showed a scarcity of cells with a dense tissue structure and unsharp delimitation against the myocardium, sending radiations into it.

The Young Candidate for Coronary Heart Disease.

M. M. GERTLER, *Department of Medicine, Columbia University College of Physicians and Surgeons, 620 West 168 Street, New York 32, New York.*

Modern diagnostic methods have achieved a great deal in the diagnosis of the acute or subacute phase of coronary heart disease which terminates in myocardial infarction. The increasing death toll from coronary heart disease suggests that another form of approach to this problem be studied, namely, the prevention of coronary heart disease. It is obvious that before preventive measures are instituted, selection of the individual most particularly prone to coronary heart disease would be necessary. In other words, efforts should be made to determine those individuals whose tendencies are greatest to have a myocardial infarction. How may we separate these putatively normal people from the entire population? It is with this problem in mind that this presentation is made.

The problem of preselection of men prone to coronary heart disease from putatively normal males has been difficult because of the paucity of definitive criteria for purposes of preselection. However, in a recent study of individuals who had experienced myocardial infarction prior to the age of 40, certain leads were uncovered which it is hoped will prove helpful in recognizing the individual in whom myocardial infarction is particularly likely to occur. These criteria are based upon morphologic, biochemical, hormonal, psychologic, and occupational studies made on 100 patients who had experienced myocardial infarction prior to the age of 40 and 147 putatively normal males of similar age. The bearing of this problem to gerontology will be discussed.

Gerontologic Heritage: A Study of Past Influences on Contemporary Medical Conceptions.

R. GINZBERG, *1200 West Cedar Street, Cherokee, Iowa.*

Physiology of and pathology in old age are under intensive study today. The purpose of this paper is to show that one of the main obstacles in the way of understanding of advanced life—the conception that old age and disease are identical—has still not been overcome.

In the past the *senectus ipsa morbus* philosophy dominated. Opinions of adherents of this philosophy (Cannstadt), of others whose opinions were similar but with different nuances (Thomas More), and of still others more discerning (Benjamin Rush, Maclachlan) are quoted. The prevailing opinion was that the normal life span is around 70 years, that aging is degeneration, that mental and physical deterioration are natural, that invalidism is unavoidable, and that arteriosclerosis is physiologic in old age.

There was another group of scholars whose conception of longevity and aging were passed by. Haller, Hufeland, Metchnikoff, Bogomolets, and others are illustrations. The weakness and strength of their concepts is discussed.

It is also shown that many basic opinions of the dominating school of thought have not withstood the test of contemporary developments.

Erroneous conceptions of the past, however, still influence modern thinking and practice. Instances are cited and their harmfulness stressed.

The Negative Attitude Towards the Elderly.

R. GINZBERG, *1200 West Cedar Street, Cherokee, Iowa.*

By negative attitude we understand an approach based on both feeling and conviction that the elderly are lost causes, that those advanced in age are doomed to regression and degeneration leading to such loss of vitality that they are placed outside of any active social organism.

Contrary to some opinions, this negative attitude can be demonstrated to have existed in almost every

era of human history, our own civilization included. The negative attitude, however, is not always apparent. Often camouflaged, it appears as a part of one's inner motivation. In many primitive societies the attitude is obvious, but in the majority of other cultures it is hidden.

The instance of China was chosen to demonstrate that even in societies with a reputed favorable attitude toward the elderly, the inner attitude seems not to differ from that of other civilizations. In Western civilization the elderly are protected by religion, morals, and the law. Outbursts of hostility and rejection of the elderly are evidences of latent conflicts. These conflicts are based on the incompatibility of negative inner attitude and the obligations imposed by the cultural patterns. Understanding of the inner mechanisms is instrumental for paving a new way to better social and personal adjustment of the elderly.

Principles of an Effective and Economical Program of Medical Care for Elderly People.

F. GOLDMANN, *Harvard University School of Public Health, 55 Shattuck Street, Boston, Massachusetts.*

To meet the widely varying health requirements of elderly persons as well as the community's need for effective, humane, and economical medical care of senior citizens as a group, a broad and well balanced program of medical care must be initiated and intelligently executed, by stages if necessary. Such a program should provide for all the physical facilities and personal services needed by elderly people. It should assure comprehensiveness, continuity, and consistency of qualitatively adequate medical care through the stages of health, acute sickness, convalescence, and long-term illness.

Both organization of service and organization of payment must receive due consideration. In developing the service organization the emphasis should be placed on attainment of teamwork between the various types of health personnel, such as physicians, dentists, pharmacists, social workers, professional nurses, practical nurses, housekeeping aides, physiotherapists, occupational therapists, and nutritionists, and between general and special hospitals and home-like institutions.

Low rent housing projects with provision for medical and nursing attendance should be developed in preference over the building of institutions of the custodial type. Large scale construction of physical facilities requires general tax funds to supplement the resurces of voluntary organizations. The operating cost of the medical care program should be met through insurance, general tax funds, or a combination of both methods, with the emphasis placed on organized self-help.

Peptic Ulcer in the Aged.*

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Occupational Potentialities of the Older Cardiac Patient.

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Through the application of selective placement techniques and with a reasonable amount of medical supervision, a considerable proportion of cardiac patients in the sixth and seventh decades can enter into and remain in useful employment.

In evaluating the work capacity of the elder cardiac patient consideration is given to such factors as previous occupational activity, signs of diminished cardiac reserve on ordinary activity, etiology, and pathology of the heart disease, cardiac rhythm, blood pressure, condition of the arteries, chronology of cardiac episodes, necessity for medication, emotional status, and the presence of non-cardiac limiting factors.

Studies made in certain clinics have shown that a great majority of patients attending these clinics are engaging in useful occupations. Even among the older age groups, substantial numbers are gainfully employed, and follow-up studies give no evidence that continuing employment has an adverse effect on the course of heart disease.

Age itself, even in the absence of disease, is a serious obstacle to securing employment. Retraining of elderly cardiac patients for new types of work should ordinarily be undertaken only when there is reasonable assurance that employment can be found at the termination of the training program.

The Male Climacteric and the Post-Climacteric State.

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This study is concerned with the correlation between urinary hormone excretion and the clinical syndrome of male climacteric and the post-climac-

teric state. A total of 80 patients was investigated in three groups:

1. Of 28 patients showing the characteristic symtoms of male climacteric and a satisfactory response to testosterone administration, 224 became asymptomatic and 4 showed a good response to therapy.

2. In 19 patients presenting symptoms resembling those of the climacteric (chiefly psychoneurotics) the response to testosterone administration was unsatisfactory; 14 of this group did not respond at all and 5 showed only slight improvement.

3. Of 33 patients, 60 to 80 years of age, who were studied in the course of a gerontologic survey and who did not present climacteric symptoms, only 10 were treated with testosterone; out of these 9 responded satisfactorily and 1 partially.

Urinary gonadotropins were assayed in 47 cases (12 climacteric, 18 non-climacteric, and 17 gerontologic individuals). Elevated values were found in 19, normal in 16, and low in 12 cases. Of the 19 high values, 5 occurred in the climacteric, 3 in the non-climacteric, and 11 in the gerontologic group. Of the 16 normal values, 12 occurred in the non-climacteric group and 2 in each of the other two groups. Low values were noted in 5 climacteric, 3 non-climacteric, and 4 gerontologic patients.

These figures indicate that high gonadotropin values are not a *conditio sine qua non* for the diagnosis of either the climacteric or the post-climacteric state in the male; neither is the occurrence of high gonadotropic titers diagnostic of the climacteric since it was also noted in the absence of testosterone deficiency.

The incidence of elevated gonadotropins in climacteric patients—45 per cent—is considerably less than anticipated. The incidence of 65 per cent elevation in the gerontologic group is comparable to the figures published for females of similar age but is somewhat lower than our own figure of 80 per cent for post-climacteric women.

Low gonadotropins are rather frequent in climacteric and senescent males; as a rule this coincides with low 17-ketosteroids, suggesting an over-all decline in pituitary function.

Normal gonadotropin excretion (16.5 per cent of the climacteric and 11.5 per cent of the gerontologic group) is definitely less common than in the non-climacteric group (66 per cent).

Low and normal urinary ketosteroid excretion occurs with equal frequency in the climacteric and non-climacteric group; low values are prevalent in the gerontologic group. The average in the latter (7.27 mg.) is lower than in the climacteric (10 mg.) and the non-climacteric group (12.5 mg.).

Organized Community Planning for Older People in Canada.

J. Good, *Division of Old Age, Welfare Council of Toronto and District, Ontario, Canada.*

Community planning for older people in Canada has developed in different ways in different communities across the country.

In Toronto, Ontario, which has approximately 100,000 people over 60 years of age, the Division on Old Age of Welfare Council has a broad representation of lay and professional people from the public departments, and privately financed services from Jewish, Catholic, and non-sectarian groups.

Some projects which have resulted from organized community planning in Toronto and district are: (1) a co-operative house where the residents share the work and expenses is in the operation under the wing of an established old people's home; (2) a social centre in city-owned property operates successfully, financed by the Community Chest; (3) counselling service for older applicants for employment has been developed under National Employment Service; (4) travelling libraries have been placed in old people's homes by the Public libraries; (5) a holiday centre for older people has been in operation for 4 years; (6) a public housing project has apartments for old couples.

In Kimberley, B. C., a stucco cottage type building consisting of four 2 roomed apartments with bath has been constructed. The suite can accommodate a single pensioner or a couple if necesary.

Vancouver, B.C., Montreal, Quebec, and Edmonton, Alberta, are 3 of several large cities in Canada where the Welfare Council or Council of Social Agencies has developed a committee on old age as part of the Family Welfare Division. In one instance the community planning resulted in a cooperative house, and in another a series of recreation clubs was developed.

In the province of Saskatchewan groups of old age pensioners have been active in the establishment of community organizations which have developed social centres for older people of all incomes.

Electric Convulsive Therapy with Complete Curarization.

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Severe osteoporosis or osteomalacia are illnesses which have prevented the use of electric convulsive

therapy when indicated for pathologic depressive states in elderly patients because of the danger of severe bony injury. A technique of complete curarization has been developed which permits this therapy to be used. The technique, the dangers, the safeguards, the results, and some of the physiologic and psychologic phenomena are described.

Diurnal and Age Changes in the Sodium and Potassium Concentration of Human Mixed Saliva.

B. GRAD, *Gerontologic Unit, Allan Memorial Institute, McGill University, Montreal, Québec, Canada.*

Samples of unstimulated mixed saliva were collected from 36 persons ranging from 5 to 86 years of age, the collections being made before each meal and at bedtime for a period of three days. The mean and standard error of the values obtained were as follows:

TIME SAMPLE COLLECTED	SODIUM (mEq./litre)	POTASSIUM (mEq./litre)
Before Breakfast	16.5 ± 0.6	27.0 ± 0.9
Before Lunch	8.3 ± 0.6	25.9 ± 1.1
Before Dinner	8.6 ± 0.7	25.0 ± 0.9
Before Retiring	10.0 ± 0.7	25.7 ± 1.2

Thus, there is a distinct peak in the sodium concentration upon arising in the morning, a fall during the day, and a tendency to a rise before retiring. The potassium concentration, however, did not show a significant daily variation, and hence the sodium to potasssium ratio showed a diurnal variation pattern similar to that of the sodium concentration. Within the three day study period, the day-to-day variation of the sodium and potassium content of the saliva did not vary significantly if comparison were made on samples collected at the same time of day. Both sodium and potassium concentrations of the saliva increased in a statistically reliable manner with increasing age. Finally, the sodium concentration tended to be higher in males than in females, while the potassium concentration was the same in both sexes.

The American Red Cross and the Aging.

D. N. W. GRANT, *Medical Services, The American National Red Cross, Washington, D. C.*

The Red Cross has long been conscious of the particular problems and the particular abilities of the aging. Most of our chapters, located in almost every county in the nation, have some program which affects the aging, either through service to them or by affording them an opportunity to participate in Red Cross activites.

One of these programs which is directly concerned with care for the aging is home nursing instruction.

The problem of the aged, or rather the problem of the care for the aging, comes rather forcibly to the attention of the Red Cross from the grassroots of our country.

The American Red Cross has been teaching Home Care of the Sick to school and community groups since 1908. The course was designed primarily to teach the homemaker the simple nursing skills and treatments she would be expected to perform in carrying out the doctor's orders and in making the patient comfortable.

Emphasis in the early years was largely on the care of the family, and particularly the growing child.

In 1943 the course was divided into two 12-hour courses, Home Care of the Sick, and Mother and Baby Care. Instructors now given training in teaching methods and course content are urged to apply the basic health principles to those factors that meet the needs and interest of the members of the class.

In recent years the instructors are finding that many of the class members are concerned with the health problems of older people who must be given care in their homes. Gradually the nurse instructors began asking for material pointed towards the care of the aged. With the assistance of specialists in the field of gerontology and geriatrics, special teaching material was prepared for the instructors outlining the areas of need for the aging person who usually is happier when cared for in his home. This material not only considers the nursing skills needed in caring for the aging, but also some of their psychologic needs and the safety factors that are involved in the protection of their health.

Some Quantitative Aspects of the Aging of Western Populations.

J. V. GRAUMAN, *Population Division, Department of Social Affairs, United Nations, New York.*

For the purpose of this paper, old age will be defined in chronologic terms only. It will, however, be emphasized that other criteria of old age, such as biologic, psychologic, and conventional criteria, must also be taken into account for a proper understanding of the problem.

Increasing old age is a problem of western countries and results largely from recent declines in mortality and even more recent declines in fertility. This will be illustrated by a presentation of the demographic history of some typical countries. The results of an experiment will be used to show the compara-

tive effects on aging of declines in child mortality, general mortality, and fertility. In the light of these results the prospects of further aging of western populations in the future will be assesed.

Consideration will be given to the fact that chronologic aging does not necessarily mean an increase in biologic and psychologic senility, due to possible improvements in health and possible changes in social attitudes. An increase in the quantity of old age is likely to result in severe social problems which, however, may be modified through changes in its quality from the points of view of health and mental and social attitudes.

Some Newer Concepts in the Management of the Menopausal Patient.

R. B. GREENBLATT, *Department of Endocrinology, University of Georgia, Atlanta, Georgia.*

A brief discussion is given of the hormonal physiology of the menopause. The role of psychosomatics in the symptomatology is delineated and the employment of placebos in therapy evaluated. Finally the rationale for the use of combinations of an estrogen-androgen preparation and the indications and contraindications of estradiol-testosterone pellet implantation in the management of the menopausal patient are discussed.

Variations of Some Humoral Levels From Adult and Presenile to Old Age With Special Regard to the Plethoric Constitution.

E. GREPPI, G. MININNI, *and* G. SCARDIGLI, *Medical Clinic, University of Florence, Florence, Italy.*

Numerous clinical and experimental studies have confirmed the significance of hypercholesterolemia as a humoral indicator of plethoric states such as atherosclerosis, red hypertension, florid diabetes, and obesity. The hypercholesterolemia expresses the metabolic nature of these diseases, in which disorders of the blood lipids may play an important role. In the present communication the authors give a report on a statistical study of 100 patients with atherosclerotic coronary disease, the results of which clearly show the existence of a close correlation between hypercholesterolemia, atherosclerosis, and age.

Another humoral index of a significance equal to the hypercholesterolemia in atherosclerosis is hyperprothrombinemia, as expressed by a reduction in the normal prothrombin time. The hyperprothombinemia proves the existence in atherosclerotic disease of a disorder in the protein metabolism, as indicated by an inversion of the normal albumin/globulin ratio, by an increase in the fibrinogen concentration of the plasma and by changes in the lipoproteins. This hyperprothrombinemia is the cause of the increased tendency to thrombosis in these patients, as proved by the high incidence of thrombosis in atherosclerotic disease in every vascular region of the body.

The demonstration of these humoral indices in the adult and presenile periods, followed by a decrease in the subsequent years, is in good agreement with the clinical manifestations of plethoric conditions, which in most cases make their appearance about the age of 50 and show a gradual attenuation in senility.

The Older Adult's Contribution to a Community Action Program.

E. L. GRIM, *Department of Public Instruction, State of Michigan, Lansing, Michigan.*

How can the older adults be organized and trained to improve the quality of living in small communities? The answer to this question is being sought in Michigan where for the past five years a demonstration research project sponsored by the Department of Public Instruction in cooperation with the W. K. Kellogg Foundation has been developing in a number of small communities.

The program in these communities took the form of study and action in the areas of health, education, recreation, religion, home and family living, trade and industry, and agriculture. The efforts of the committees in these areas were coordinated by a central group which united their efforts and resources to attack common community problems.

Some projects undertaken successfully by these communities included community beautification, adult education programs, annual hobby shows, a new bridge, swimming pools, summer and winter recreational programs, square dance clubs, artificial breeders associations, health center building, winter sports area, agricultural congresses, craft center building, annual home and family living conferences, new libraries, religious surveys, elected officials training conferences, and training programs for organization leaders. There were many other projects, some small and quickly accomplished, and some large and long-term in nature. The roles of the older adults in these and other projects will be discussed and their contributions to the various levels of program development.

The Influence of Nutrition and of Some Other Factors, Including Various Forms of Stress, on the Serum Cholesterol Level. Results of an Experiment of 9 Months' Duration in 60 Normal Human Volunteers.

J. GROEN, C. E. KAMMINGA, B. K. TJIONG, *and* A. F. WILLEBRANDS, *Wilhelmina Gasthuis, Amsterdam, Holland.*

The investigation included 60 normal human volunteers. The individuals were divided into three groups, which were studied over a period of thirty-six weeks.

The first group received an almost purely vegetable diet with a daily cholesterol content of 1.5 mg. The second group was fed a diet containing meat, cheese, milk, and eggs in addition to vegetables. This diet had an average daily cholesterol content of about 300 mg. The last group was given a liberal diet containing meat, cheese, and eggs with butter, cream, and animal fat ad libitum (cholesterol content approximately 900 mg. daily). After twelve weeks the diets were shifted and an interchange of diets was made again after another twelve weeks, so that each group successively received the three kinds of diet. Determination of serum cholesterol was made once a week.

The results showed a significant difference in serum cholesterol values between the various dietary periods. Thus the cholesterol values showed a decrease in the periods in which a vegetarian diet was given, but increased when a liberal diet was administered. There was no significant difference between male and female volunteers in this respect, but there were large individual (constitutional?) differences in the magnitude in which the volunteers reacted to the diet.

In addition to the influence of the nutritional factor the serum cholesterol was found to respond to various stresses, decreasing during infections, trauma, bodily exercises, and emotional tension. The drop was followed in the subsequent weeks by a frequently considerable rise. This behavior of the serum cholesterol took place irrespective of the type of diet consumed. The fall during the stress and the rise during convalescence were sometimes larger than the changes produced respectively by the vegetarian and the liberal diet.

It is concluded from these findings that if hypercholesterolemia plays a role in the genesis of atherosclerosis, this condition could be produced or accelerated by many factors, viz., the consumption of a diet high in animal foods, a constitutional predisposition to hypercholesterolemia, and the after-effect of infections, trauma, severe exercise, and emotional tension. As far as the last factor is concerned, our findings would bridge the gap between those who have maintained that atherosclerosis is mainly of metabolic origin and those who have pointed to its frequent occurrence in individuals who have labored under strain.

Diffuse Alveolar Atrophy of the Jaw, a Form of Pre-senile Paradental Disease, and Its Relationship to Pre-senile Osteoporosis of the Spine.

J. GROEN, F. DUYVENSZ, J. H. REISEL, *and* J. A. HALSTED. *Wilhelmina Gasthuis, Amsterdam, Holland.*

The cause of the primary, noninflammatory type of paradental disease, commonly known as diffuse alveolar atrophy of the jaw, or paradentosis, is unknown. It is said to occur mainly in elderly individuals, but modern clinical and x-ray studies have revealed its frequent occurrence at a much younger age level. A series of 24 of these cases are presented in whom the condition was found to occur regularly in combination with (pre) senile osteoporosis of the spine. This suggests that the two conditions are not separate diseases but are really manifestations of the same pathologic condition in different parts of the body.

(Pre) senile osteoporosis, sometimes called postmenopausal osteoporosis, is said to be due to a hormonal disturbance, although the evidence for this concept is unconvincing. Another possibility is pointed out. The dietary histories of the patients in this study revealed that at an early age they had stopped taking milk. As a result, most of them had calcium intakes of 300 to 450 mg. per day, a definitely suboptimal amount. On this intake some patients were in a negative calcium balance. As all studies of intermediate calcium metabolism in these patients showed normal results, we are inclined to regard this prolonged suboptimal dietary intake of calcium as the main cause of primary diffuse alveolar atrophy of the jaw and of (pre)senile osteoporosis. These conditions are not due to senility per se, but are the end-result of a prolonged calcium undernutrition which takes many years before it becomes clinically evident.

As controls, 24 individuals who had taken at least one quart of milk per day for the greater part of their lives were investigated. A far less incidence of paradental disease and of spinal osteoporosis was found among these individuals.

The Relation of Arteriolarsclerosis to Hypertension as Elucidated by Studies on the Nephrectomized Dog.

A. GROLLMAN, *Department of Experimental Medicine, Southwestern Medical School of the University of Texas, Dallas, Texas.*

The relation of arteriolarsclerosis to hypertensive cardiovascular disease has long attracted interest and been the subject of diametrically opposed concepts. Recent studies on the pathogenesis of these disorders, particularly as induced by bilateral nephrectomy, have clarified many questions as regards the etiology, pathogenesis, and interrelationships between these two disorders and permit one to describe logically the sequence of their development in the human.

The view that an abnormal function of the damaged kidney with production of a pressor agent is the cause of hypertension has been dominant since the last century. Tigerstedt and von Bergmann's renin, described in 1895, in modified form, has continued to serve as a prototype of a pressor agent believed to mediate the elevation in blood pressure. Impairment of renal function by parenchymal disease, as in nephritis, or by interference with the arterial blood flow as in arteriolarsclerosis involving the renal circulation or by application of a clamp to the renal artery results, it is believed, in the production of the pressor agent responsible for hypertension. The error of this view which had so long dominated this field of investigation is now apparent. It fails to account for the facts as observed either experimentally or clinically.

The demonstration that classical hypertension is induced by bilateral nephrectomy affords direct proof of the concept that the presence of renal tissue is not necessary for the induction of hypertension. Apparently then, it is the failure of normal renal activity rather than dysfunction of the kidney which is responsible for the disorder. The arteriolar changes characteristic of hypertension are also induced by bilateral nephrectomy. These arteriolar changes, the pathogenesis of which may be well observed in the nephrectomized animal, are accordingly the result of hypertensive cardiovascular disease.

Applying the above concept to the human, one must consider generalized arteriolarsclerosis to be a consequence of hypertensive cardiovascular disease which, by its effects on the smooth muscle of the blood vessels, results secondarily in the morphologic changes seen at autopsy. On the other hand, vascular changes such as those observed in nephrosclerosis, if primary, may, in turn, by affecting renal function result in hypertension. Arteriosclerosis involving tissues other than the kidney will merely cause an elevation in the systolic blood pressure but not give rise to hypertensive cardiovascular disease. This concept not only is in accord with the available data but also accounts adequately for the facts as observed clinically. The increased prevalence of arteriosclerosis with age accounts for the increasing incidence of systolic hypertension with age as well as of hypertensive cardiovascular disease (which affects both systolic and diastolic blood pressure levels). On the other hand, involvement of the renal blood vessels is not a prerequisite of hypertension. In so-called essential hypertension, the elevation in blood pressure precedes the changes in the blood vessels; ultimately, the latter are affected morphologically as a result of this disorder. The arteriolar changes may thus be the cause as well as the consequence of hypertensive cardiovascular disease.

In Vitro Studies on Fibrogenesis of Certain Connective Tissue Constituents with the Electron Microscope.

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Acid solutions of certain forms of collagen produce fibrous precipitates when neutralized or when added to salt solutions. Electron microscope examination of 1 per cent NaCl precipitates usually reveals fibrils with the characteristic axial periodicity (ca 640A) and intraperiod fine structure of native collagen. The type, concentration, and mode of addition of salt strongly influence the structure.

Buffered acid extracts ($\Gamma/2 \sim 0.2$) of some connective tissues when dialyzed against water produce a fibrous precipitate (Orekhovitch, et al., *Biokhimya 13*:55, 1948) which reveals in the electron microscope two types of fibrils, (Highberger, Gross, and Schmitt, *J. Am. Chem. Soc. 72*:3321, 1950), one with axial period and intraperiod structure typical of native collagen and a second fibril not yet seen in native tissue showing an axial period of about 2000A and a highly distinctive intraperiod structure.

Addition of serum mucoprotein as prepared by Weimer et al., *(J. Biol. Chem., 185*:561, 1950) and Schmid (*J. Am. Chem. Soc., 72*:2816, 1950) to acid filtrates of collagen, upon dialysis, produces a fibrous precipitate consisting of long spacing fibrils, or collagen type fibrils, or a mixture of the two depending on the relative concentrations of mucoprotein and collagen. (Highberger, Gross and Schmitt, *Proc. Nat. Acad. Sci.*, in press.) Dialysis of collagen solutions alone does not produce structured fibrils.

Older People Live in Institutions.

B. L. GROSSMAN, *Drexel Home (Home for Aged Jews) Chicago, Illinois.*

There is no formula that can be worked out in making living arrangements which will apply to all older people. Each individual is different and where he lives may be suitable for him, but not for another older person. In fact, as the individual's situation changes, so may his housing needs be different.

Institutional housing for older people includes the nursing home (both profit-making and non-profit), homes for the aged (both public and private), infirmaries and hospitals for the infirm and chronically ill, and hospitals for the mentally ill and aged.

The care given to an older person in an institution should be provided on the basis of the individual's physical, social, and psychologic needs. It must be more than just custodial care. It should be therapeutic and rehabilitative.

If the aged person is to benefit from the care given him in an institution it is important that consideration be given to the type of facilities provided for his comfort and welfare.

Generally, standards for facilities and services in institutions are set up by local, county, or state authorities to assure, to the greatest possible degree, that the aged person receives adequate and a good quality of care. However, many of the requirements do not consider the wide variations in the individual's physical condition and mental alertness. Then too, very often those who formulate the physical standards and requirements of institutions are idealistic rather than realistic and practical. Most standards, if followed, would cause those in charge of the institution to demand a high rate for maintenance. Yet, these same authorities through legislation provide only a very small portion of cost through the various assistance programs.

When people who have grown older live in an institution, they have a right to good medical care, comfort, protection, privacy, freedom of speech and action, good nutritious food, proper social and recreational life, clean shelter, respect for their possessions, and the right to worship as they desire.

A well planned building makes for efficiency and low cost operation. However, a happy atmosphere with social life for the people in the institution will help them derive the maximum benefit from all the care given them.

Rorschach Studies of Personality Characteristics of a Group of Institutionalized Old People.

C. GROSSMAN, F. WARSHAWSKY, *and* M. HERTZ, *The Montefiore Home, Cleveland, Ohio.*

A study is in progress on the personality characteristics of a group of 50 institutionalized old people selected at random at the Montefiore Home in Cleveland, divided into two groups, 60 to 74 years of age and 75 to 90, to determine general personality trends, degree of adjustment and balance, age and sex difference. The present paper is restricted to results with the Rorschach method. Data are analysed qualitatively for the group as a whole, for the younger and older groups, and for the sexes separately, in terms of general group trends, variability, adjustment, neurotic and/or psychotic trends, and changes due to organic involvement.

Results suggest that the group functions at a low level of efficiency. Mental productivity is lower and slower than that of the average adult; reasoning ability, imaginative capacity, and motivation are reduced. Thinking tends to be rigid and is often vague and/or irrealistic. Interests are limited. Emotional life is rigid, shallow, and unadapted. Especially evident is the inability to form satisfactory social relationships.

The group as a whole shows varying degrees of adjustment and balance with neurotic and/or psychotic trends frequently in evidence and many indications of personality deterioration due to organic change. Some subjects show however healthy well integrated personalities and capacity for high level of performance.

Examinations of the relative performance of the older and younger groups studied shows more of the older group lower in intellectual and emotional flexibility and control, intellectual productivity, sensitivity to and awareness of the environment, and social adaptability. Reliable sex differences are also observed, more women than men being more productive, more intellectually responsive and flexible, more sensitive to the environment, but more unstable emotionally.

Results herein reported must be considered in terms of the high degree of selectivity of the group studied.

Personality Problems: Pioneers of Aging.

M. GUMPERT, *New York University, Research Division of the Goldwater Memorial Hospital, New York, New York.*

Famous outstanding men and women who have maintained their intellectual power and creativeness

in advanced age, have been personally interviewed in Europe and the United States and some conclusions are drawn from this study in regard to the preservation of personality and social standing in old age.

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Planning for the Aged in Denmark.

T. HAARLOEV, *Danish Ministry of Labor and Social Affairs, Copenhagen, Denmark.*

A discussion of various programs in Denmark for the care of the aged, including pensions and other measures for the welfare of aged persons, will be presented.

Quantitative Measurements in Humans of a Secondary Sex Character, Axillary Hair.

J. HAMILTON, *Department of Anatomy, State University of New York, State University Medical Center at New York, College of Medicine, 350 Henry Street, Brooklyn 2, New York.*

Studies have been made of axillary hair in approximately 1000 males and females, ranging in age from the first to the eleventh decade of life.

In some of the males in this series these values have been compared with (1) data for urinary titers of ketosteroids, androgens, and gonadotrophins, and (2) phenomena known or claimed to be related to stimulation by sex hormones. These phenomena include the status of spermatozoa; beard; sebum; acne; number, diameter, fragility, and sedimentation rate of erythrocytes; diurnal changes in sitting height; somatotype; and the weight of the body and its proportions of fat-free tissues and water.

The effects of castration upon certain of these phenomena have been studied.

A Study of the Utilization of Calcium by Mature Rats of Different Ages Using Radioactive Calcium-45.

T. S. HAMILTON, *College of Agriculture, University of Illinois, Urbana, Illinois.*

Radioactive calcium (Ca^{45}) is being used in a series of tests designed to measure the efficiency of calcium utilization and replacement in mature rats of different ages. Albino male rats representing different age groups, standardized as to calcium storage, weight and vigor, are given single and individual doses of Ca^{45} as the carbonate by stomach tube. One or more individuals are sacrified at 5, 10, 24, 48, and 72 hours after dosage. The entire flesh and the bones from each rat are analyzed separately for total calcium and the proportion of total which is radioactive. Results from two age groups will be reported.

The Biochemical Basis for Renal Hypertension.

P. HANDLER *and* F. BERNHEIM, *Departments of Biochemistry and Nutrition and of Physiology and Pharmacology, Duke University School of Medicine, Durham, North Carolina.*

Previous studies from this laboratory have demonstrated that feeding a low protein diet abolishes the hypertension which is induced by sub-total nephrectomy in the rat. This, in turn, has been demonstrated to be the result of diminished secretion of ACTH in animals living on low protein diets.

Hypertension can readily be restored in low protein fed, sub-totally nephrectomized rats by administration of cortisone, even on a sodium-free diet, but not by desoxycorticosterone acetate even though moderate amounts of salt be included in the diet. Thus, the pituitary-adrenal system is necessary to renal hypertension but not by virtue of a renal salt retaining mechanism. This was substantiated by the finding that a dose of ACTH, which was without effect on the blood pressure of normal animals, created an impressive hypertension which was maintained throughout the survival period of totally nephrectomized rats.

These studies led to a search for a pressor principle in normal human urine. When assayed in low protein-fed, partially nephrectomized rats, normal human urine contains activity equivalent to almost 1 mg. of cortisone per milliliter. The same activity was found in normal rat urine but considerably less was found in the urine of intact rats fed a low protein diet. In contrast, the urine of partially nephrectomized rats is free of this material regardless of the nature of their diet. The responsible material has been chemically concentrated 250 fold. It is poorly dialyzable, non-ether extractable, soluble in 95 per cent ethanol, not destroyed by tryptic digestion, stable in boiling alkali but activity disappears in two hours at pH 3 and 37 C. Further studies of its physiologic significance and chemical nature are now in progress.

The Electrocardiogram in Aged Individuals.

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Relatively little is known, as yet, concerning the criteria that determine the normal electrocardio-

graphic pattern in the aged, particularly those in which unipolar leads are used. Electrocardiograms have been recorded in cases of individuals 70 years old and over, patients with known cardiac disease as well as those without it. The frequencies of various electrocardiographic abnormalities have been tabulated.

In the group exhibiting no clinical evidence of heart disease, the following conclusions seem to be warranted: 1) low voltage of the QRS complex occurs in 35 per cent of those without hypertension, but is apparently never found in those with hypertension, 2) an increased QT ratio occurs in nearly half of the nonhypertensive group, but is present in all who are hypertensive, 3) premature beats occur in 10 per cent of the cases, and 4) T wave as well as ST segment changes are not present unless there is other evidence of heart disease.

The mere presence of certain changes in the electrocardiogram need not be considered as abnormal for the aged heart. In general, however, those changes which are considered abnormalities in the younger age group should be carefully investigated in older persons. It must be remembered that although many electrocardiograms with various deviations from the normal are encountered in the geriatric field, there are, obviously, also many diseased hearts.

Attitudes Towards Work and Retirement: Southern Illinois Coal Miners.

W. H. HARLAN, *Southern Illinois State University, Carbondale, Illinois.*

Preliminary reports from several recent investigations of the relation between work experience and attitudes toward retirement indicate the possible existence of systematic variations among different occupational groups. This paper reports the findings of a study of 150 Southern Illinois coal miners aged 50 years and over who were employed in 13 large mines in 5 counties. The average age was 61 years, and the average length of work as a miner was over 40 years. All types of mine jobs were represented. Information was obtained in personal interviews; data were recorded on standard schedules.

The subjects had entered the mines at an average age of 16 years. More than half were the sons of farmers; only one-third were miners' sons. The reason most often given for becoming a miner was lack of other job opportunities. All subjects had witnessed or had been involved in accidents resulting in severe injury, and many had discouraged sons and friends from entering the mines for this reason. Loss of income was the feature of work activity which most respondents thought they would miss upon retirement; few mentioned friendships formed on the job, personal satisfactions deriving from work, or status in the community. A majority emphasized that their work had been merely a way of earning a living; other or auxiliary motivations were rarely mentioned. A desire to retire at or before the union pension age of 60 was frequently expressed, although half of the group had continued to work longer because of economic necessity; other reasons for continuing working were stated by only a minority. The considerable rise in real wages in recent years, accompanied by a lessening of physical strain through mechanization of most mining jobs, has probably led many of the oldest minors to exploit their seniority by continuing to work so long as they are physically able.

The work motivations of this group appear to be primarily pecuniary. Our culture is inclined to consider economic reward to be a chief and universal objective of work; studies of other occupational groups and other cultures indicate this to be untrue. This group perhaps represents an extreme limitation of work motivations to pecuniary objectives.

Hypothyroidism in the Aged.

E. H. HASHINGER, *Department of Medicine, University of Kansas Medical Center, Kansas City 3, Kansas.*

Over the years it has become increasingly apparent that many old people not only show manifestations of hypothyroidism, such as changes in the skin, hair and nails, but also accompanying elevation of blood cholesterol. This paper covers a small series in which other diagnostic aids such as iodine uptake and serum iodine determinations were made, as well as basal metabolism readings. An effort has been made to evaluate clinical response to thyroid therapy.

Surprisingly often thyroid deficiency in the aged has been noted, with correction of the symptom complex on the taking of thyroid extract.

Work and Play of Older People in a Midwestern Community.

R. J. HAVIGHURST, *Committee on Human Development, The University of Chicago, Chicago 37, Illinois.*

This paper reports part of a study of the people over 65 in a typical small midwestern city. Of the 700 people aged 65+ in this city, a representative sample of 100 was studied through interview and observation. Data were obtained concerning the work status of these people—whether they were

employed or retired; if at work whether full-time or not, and whether at the highest status level of their work career or not. Data were also obtained concerning their leisure-time activities.

Relationships are reported between work status and extent and type of leisure-time activity, between work status and personal adjustment, and between extent of leisure-time activities and personal adjustment. General conclusions are drawn concerning the extent to which leisure-time activities that were formerly met in their work are meeting the needs of people as they grow older.

Problems of Selective Placements.*

H. HAYS, *Vocational Rehabilitation Agency, 1200 Cadillac Square Building, Detroit, Michigan.*

The Effect of Age on the Carbonic Anhydrase Activity of Bovine Lenses.

R. W. HEALY *and* T. REICH, *Division of Gerontology, Washington University School of Medicine, St. Louis 10, Missouri.*

As a result of Bakker's investigation in 1939 showing a decrease of carbonic anhydrase in cataractous lenses, the question arose of whether this decrease occurs in aged non-cataractous lenses.

Using a modification of the Trethewie and Day method, the carbonic anhydrase activity of homogenates prepared from young (less than 1 year of age), adult (2 to 9 years), and old (10 years and older) bovine lenses, was determined. Ten samples were included in each group. The mean enzyme activity found was about two-thirds that of normal human whole blood (hematocrit 45) and one-third that of adult bovine whole blood (hematocrit 45). The enzyme was inhibited by sulfanilamide in a dilution of 1:10,000.

No significant change with age was demonstrated in the carbonic anhydrase activity of the lens tissue.

Endocrine Factors in the Pathogenesis of Arteriosclerosis.

P. HEINBECKER, *Department of Surgery, Washington University School of Medicine, St. Louis, Missouri.*

Arteriosclerosis is found constantly in persons exhibiting diastolic hypertension of long duration. Such sclerosis as well as increase of renin secretion is dependent in large measure upon the combined influences resulting from overaction of the hypophysial esoinophile cell-adrenal (zona fasciculata) renin hormone factors. Significant also is the underaction of the hypophysial basophile cell-thyroid-ovarian follicle and seminiferous tubule cell hormone factors which occurs. One effect of the alteration in function of these two endocrine units is a degeneration of the connective tissues of the body while another is an increase in body lipids and neutral fats. With the imbalance there occurs a release of calcium salts from the bones and their deposit in the degenerated connective tissue of the body, including the arteries. This process is facilitated by overaction of the parathyroid glands which results from a decrease in the hypophysial basophile function. The effectiveness of the secretion of the hypophysial basophile cells is lessened by any depression of neutralization of the hormone of the neural hypophysis. Vasoconstriction of itself is considered primarily to cause hypertrophy of the arteriolar musculature.

In the process of aging, the activity of the adrenal glands, the androgenic cells and the renal tubule cells to which the hypophysial eosinophile cells are trophic is maintained to a greater degree than the activity of the thyroid gland, the ovarian follicles, and the seminiferous tubule cells to which the hypophysial basophile cells are trophic. Any decrease in function of the hypothalamic nuclei also facilitates the overbalanced action of the endocrine structures to which the hypophysial eosinophile cells are trophic. The activity of the thymus gland and the islets of Langerhans to which the secretion of the hypophysial eosinophile cells is inhibitory appears progressively to decrease while the activity of the parathyroid glands to which the secretion of the hypophysial basophile cells is inhibitory gradually increases.

The Mechanism of Menopausal Vasomotor Symptoms.

A. A. HELLBAUM, *Department of Pharmacology, Oklahoma University School of Medicine, Oklahoma City, Oklahoma.*

It has been demonstrated that estrogens and androgens stimulate the release of the luteinizing factor from the pituitaries of laboratory animals. Estrogens and androgens similary release the luteinizing factor from the pituitaries of human beings. Thirty-two patients in menopause with severe vasomotor symptoms have been studied. Following the administration of estrogens and androgens the alleviation of symptoms was correlated with the increase of the luteinizing factor in the urine. Pituitary extracts containing the luteinizing factor likewise control the vasomotor symptoms of menopause in oophorectomized women.

Endocrine Studies in Aging.

A. L. Heller, *and* R. A. Shipley, *Department of Medicine, Lakeside Hospital and Western Reserve University, Cleveland, Ohio.*

Fifty-two senile men and women between the ages of 66 and 92 years were studied. Urine assays of 17-ketosteroids, gonadotropin, and 11-oxysteroids were performed in order to compare the values with those obtained in young subjects and to determine possible sex differences. In addition to general clinical appraisal of the degree of senility in each subject, a special search was made for degenerative changes in the eye, the large vessels of the leg, and the spine. Results of the hormone assays were compared with the degree of degenerative change encountered in order to discover any possible interrelationship.

In the group as a whole 17-ketosteroid excretion was markedly lowered. Mean values during the ninth decade of life were no lower than during the seventh. When compared to normal young subjects of the same sex, the percentage decline in males was more severe than in females. This may be attributable to a decrease of both adrenal and testicular precursors in the former.

Gonadotropin excretion exceeded the normal range in 70 per cent of the aged women and 21 per cent of the aged men. The presence of climacteric symptoms was in no way related to the observed levels of gonadotropin. Neither were gonadotropin values correlated in any way with ketosteroid levels. In women, as the post-menopausal interval increased, there was a tendency for gonadotropin titers to become lower than during the earlier post-menopausal period. Moreover, in many of the older men, subnormal values were encountered. Thus in later life it is possible that two opposite influences come to bear upon the pituitary—primary gonadal failure, which tends to enhance the secretion of gonadotropin, and a degenerative change of the pituitary which leads to a decreased secretion.

The 11-oxysteroids in senile subjects were not excreted in decreased amounts. The sustained level of adrenal corticoids which is thereby implied, in the face of a decline in ketosteroid precursors presumably of anabolic type, might conceivably contribute to certain degenerative changes, such as osteoporosis, which accompany the aging process. It was, however, not possible to demonstrate any correlation between any of the three hormone levels or their ratios and the severity of various degenerative changes, including osteoporosis, within the group itself.

The Nature of the Sustained Pressor Principle.

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In 1947 Shipley, Helmer, and Kohlstaedt reported the presence in blood of a principle which elicits a sustained pressor response in nephrectomized animals. This material is released into the blood stream in conditions where there is a diminished blood flow and/or diminished blood pressure within the kidneys. Although renin is liberated under these circumstances, the elevation of pressure caused by the injection of sustained pressor plasma is much greater than would be anticipated from its low renin content.

The renal vein blood obtained from rat with experimental hypertension of the Goldblatt type sometimes shows considerable sustained pressor activity.

Aqueous extracts of animal kidney contain both renin and sustained pressor principle. Autolysis of kidney tissue at room temperature under toluene increases the ratio of sustained pressor principle. By alcohol treatment of kidney tissue it is possible to prepare renin practically free of sustained pressor activity. It has not been possible as yet to prepare from kidney tissue sustained pressor substance free of renin.

Since this pressor principle is protein-like, antisera against it as well as renin have been produced in a series of animals and human subjects injected with kidney extracts. Hog kidney extract injected into dogs will cause the production of antisera that will neutralize sustained pressor material derived from dog as well as hog kidneys. Although antisera from human subjects treated with hog kidney extracts will neutralize sustained material of hog origin it will not neutralize human sustained pressor principle. The neutralization occurs *in vitro* and *in vivo*.

Employability and Aging.

H. G. Heneman, Jr., *Industrial Relations Center, University of Minnesota, Minneapolis, Minnesota.*

In analyzing problems of employability and aging in the United States, several considerations stand out sharply. First, pragmatic definitions of employability vary with the tightness or looseness of the labor market. Second, extreme emphasis is generally placed upon short-run factors and consequences in dealing with such problems. Third, each vested interest group, *e.g.*, employers or unions,

places its own welfare above that of other groups. Fourth, and probably most important, there is a tragic dearth of information about the economic aspects of employability and aging. Individual companies and unions do not have such data readily available; there have been few research studies. A wholesale expansion of basic and applied research is sorely needed in this area.

Employers frequently have hiring limitations that discriminate against older workers. Many believe that it costs more to hire older employees because of their alleged: 1) more frequent illness and absenteeism, 2) greater susceptibility to occupational disease and serious accidents, 3) physical and mental "slow down," 4) increased training time, 5) inflexibility in tasks they can perform, 6) increased costs under pension, insurance, and welfare programs, etc.

With respect to older employees now on their payrolls, employers generally feel that pensions and compulsory retirement programs provide adequate solutions. Employers (and unions) generally favor public pensions. The economic return from having older employees produce goods and services instead of drawing public benefits has not been considered widely. Programs for keeping older employees working have not been developed except in rare instances. Unions have also been negligent in this respect.

Pathogenesis of Arterioclerosis in the Light of Food Restriction in Scandinavia During the War.

F. HENSCHEN, *Department of Pathology, Caroline Institute, Stockholm, Sweden.*

The pathogenesis of arteriosclerosis can be studied by different methods, the genetic, the clinical, the anatomic, the geographic, the historical, and the experimental.

Food restrictions, especially in fat, meat, and eggs, if rigorously realized during years in an isolated population or in a whole people, may be considered a feeding experiment in man on a very large scale, and therefore as a valuable contribution of historical pathology to the pathogenesis of arteriosclerosis.

In Finland and Sweden rigorous food restrictions were necessary during the war. Fat, meat, and eggs were very scanty; there was not as much of carbohydrates as people wanted, but there was enough of vitamins. People grew thin, they complained about the restrictions, but the regulation of provisions was no doubt very favorable for the health, and the common state of health has never been as good in Sweden as during this time. The mortality decreased to a minimum, owing mainly to a very marked decrease of the mortality from arteriosclerosis and myocarditis chronica, i.e., arteriosclerotic heart disease. Also, gall stones were less frequently found at autopsy.

After the war period, the mortality from arteriosclerosis and myocarditis chronica increased rapidly and soon rose higher than before the crisis, probably compensating for the abnormally low mortality during restriction time.

The marked decrease of arteriosclerotic diseases during the crisis years is in my opinion a direct consequence to the necessary restrictions in fat, meat, and eggs during that time.

Etude Sur L'Artère Temporale Sénile.

R. HERBEUVAL *and* —. BASSOT, *Department of Geriatrics, University of Nancy, Nancy, France.*

Les auteurs ont procédé à une étude systématique de l'artère temporale chez le vieillard. Les documents qui sont fournis proviennent de biopsies et de prélevements nécropsiques.

Le but recherché a été celui d'une plus grande connaissance anatomique du réseau carotidien dans la sénilité et de permettre de ce fait une étude comparative avec les artères cérébrales.

L'orsque cela a été possible l'étude fonctionnelle du système arteriel rétinien a été effectuée.

La Circulation Coronaire Chez le Vieillard.

R. HERBEUVAL, —. SAIVRE, —. REMY, *and* —. SABIANI, *Department of Geriatrics, University of Nancy, Nancy, France.*

Les auteurs étudient la circulation coronarienne chez le vieillard grâce à des substances radio-opagues injectées après la mort (60 cas).

Ils mettent en évidence la raréfaction du système artériel dans son ensemble, la diminution du calibre des vaisseaux avec des zones plus retrecies.

Il n'y a pas de corrélation entre les signes cliniques ou électriques qui étaient généralement absents et le degré de l'altération des artères.

Les anastomoses intercoronariennes sont fréquemment rencontrées; les systèmes se complètent l'un et l'autre. Le système coronaire droit peut donner de nombreueses branches à travers le septum pour suppléer le système coronarien gauche. L'artère coronaire droite peutêtre obstruée à sa naissance, sans que le malade n'en souffre. Il a été possible de voir des anastomoses directes avec la cavité ventriculaire peut-être grâce au système de Thébésius. Les auteurs discutent le role fonctionnel de ces anastomoses durant la vie.

Etude de la Moelle Osseuse Chez le Vieillard.

R. HERBEUVAL, —. PIERSON, *and* —. BASSOT, *Department of Geriatrics, University of Nancy, Nancy, France.*

Le but des auteurs a été l'étude macroscopique et microscopique de la moelle osseuse des vieillards.

L'augmentation des plasmocytes est le changement qualitatif le plus important. L'ascension du pourcentage de plasmocytes dans la moelle osseuse est hautement significative d'une carcinomatose cachée. Dans de nombreux cas il a été possible de voir des cellules néoplasiques. Celles-ci ont été prècèdées par les plasmocytes. L'évolution de la moelle sénile vers la myélomatose est toujours identique. Les plasmocytes ont été trouvé en nombre élevé et de façon constante au début de la carcinomatose myéloïde quelquefois de nombreux mois avant l'apparition des premières manifestations cliniques et radiologiques.

L'érythropoïèse et la granulopoïèse n'ont pas montré d'image de déficit. Les mégacaryocytes sont normaux.

En résumé: dans son fonctionnement, la moelle osseuse sénile n'est pas différente de la moelle normale.

Il est plus fréquent d'y rencontrer des plasmocytes et des cellules néoplasiques que dans la moelle du jeune.

The Effect of Ascorbic Acid on Blood Pressure in Relation to the Adrenal Cortex.

O. HEROUX *and* L. P. DUGAL, *Institut de Biologie Humaine, Faculté de Médecine, Université Laval, Québec, Canada.*

Ascorbic acid in the form of sodium ascorbate brings back to normal the hypertension caused by any of the following methods: (a) a long exposure to cold, (b) an excess of NaCl in the diet, (c) renal compression, and (d) an injection of desoxycorticosterone acetate.

In the totally adrenalectomized rat rendered hypertensive by a daily injection of 2.5 mg. of DCA during fourteen days, ascorbic acid does not lower the pressure.

Like Cortisone (Friedman), ascorbic acid administered simultaneously with DCA prevents the hypertensive effect of the latter substance but not its renal cardiovascular effects.

Renal hypertension brought about by Grollman's method is lowered in its initial phase by ascorbic acid, but not in its chronic phase.

Hypertension and adrenal hypertrophy due to a long exposure to cold regress when the animals are brought back to normal temperature. Moreover, histology has never revealed renal lesion in any one of them.

The Cost of Chronic Illness.

R. M. HILLIARD, *Welfare Council of New York City, 250 Church Street, New York, New York.*

Costs of chronic illnesses are both direct and indirect. Direct costs relate primarily to medical and related expenses or to institutional care. Indirect costs principally result from loss of employment, not only by the invalid, but also by those who must provide necessary care, and from social losses such as the "tyranny" imposed by abnormal living situations.

Chronic illness refers to sicknesses of prolonged duration; the end-product — chronic invalids — are those for whom care must continuously be provided or readily available. Of the total population, 6.5 per cent are chronically ill; 1.5 per cent are chronic invalids.

Chronic illnesses strike most devastatingly during middle age. At least 20 per cent of chronic invalids may be rehabilitated sufficiently to maintain reasonably normal and self-sustaining life. A much larger percentage can have many years of life made more bearable.

At least 20 per cent of chronic illnesses can be arrested or cured if treated in their early stages. Medical research will surely develop ways to prevent, or treat successfully, vastly increased numbers.

Chronic illnesses force more people on to public assistance rolls than any other single cause with the exception of economic depressions.

Direct—and tremendous—costs of care for chronic invalids will more than double in the next thirty years, unless we intensify research, treatment, and rehabilitation.

The Relation Between Experimental and Human Arteriosclerosis.*

H. HIRSCH, *Laboratoire d'Anatomie Pathologique, Université Libre de Bruxelles, 97 Rue aux Laines, Brussels, Belgium.*

Necrotizing Arteritis in Dogs Related to Diet and Renal Insufficiency.

R. L. HOLMAN, *Department of Pathology, Louisiana State University School of Medicine, and The Charity Hospital of Louisiana, New Orleans, Louisiana.*

Feeding a standard high fat diet for eight weeks or longer, then inducing standard renal insufficiency in any of several ways, is regularly followed by typical arterial lesions in mongrel dogs regardless of age and sex. Either factor alone is ineffective and all control data point to these two factors only. Damage to tissues and organs other than the kidney has failed to precipitate arterial lesions in properly fed dogs.

The pathogenesis of these arterial lesions which closely resemble those of rheumatic arteritis and periarteritis nodosa in man is obscure, but studies to date indicate that there is too much of something in the standard high fat diet and too little of something from the damaged kidneys.

The toxic dietary substance is present in certain samples of creamery butter, cod liver oil, sardine oil, shark oil, menhaden oil, and soy bean oil; not present in corn oil, olive oil, cocoanut oil, lard, mutton tallow, and oleomargarine. It is relatively heat stable and is not vitamin A or vitamin D.

The arterial lesions are unaffected by the addition of choline but are prevented or retarded by omission of the dietary toxicomponent for one to four weeks, by saponification and hydrogenation of the dietary substance, by pregnancy, by cortisone, by vitamin E, by di-amyl hydroquinone, by citric acid, and by cholesterol.

The dietary toxicomponent is probably peroxides of certain fat acids that are capable of directly damaging collagen or its supporting ground and cement substances if not inhibited from doing so by fat soluble anti-oxidants or by certain co-factors normally derived from the kidney.

The interpretation of these experimental arterial lesions is difficult but some support for the following conclusions has been obtained:

1) These experimental arterial lesions in dogs constitute another example of arterial lesion related to a disturbance in lipid metabolism.

2) Further, they constitute a classical example of so-called collagen disease lesion related only to diet and renal insufficiency. At no time has there been any suggestion of antigen or antigen-antibody reaction; and omission of the toxic dietary substance reverses the state of hypersensitivity of the arterial system to the effects of standard renal insufficiency.

3) Under proper conditions arterial lesions can be precipitated at will in a matter of days.

4) Necrotizing arteritis and arteriolitis is not dependent upon hypertension but it would be surprising if elevated blood pressure did not aggravate the process.

Quantitative Studies of Some Effects of Various Steroid Substances in Aged and Debilitated Individuals.

F. HOMBURGER, W. H. FISHMAN, C. D. BONNER, *and* R. M. DART, *Departments of Medicine and Biochemistry, Tufts College Medical School, Boston, and Medical Research Laboratories of the Jewish Memorial Hospital, Roxbury, and the Holy Ghost Hospital, Cambridge, Massachusetts.*

The protein anabolic effects and other desirable actions of some new steroid compounds have been measured by metabolic balance studies and other objective methods in aged patients in studies extending over long periods of observation.

The data will be discussed with special reference to the possibility of the therapeutic uses of protein anabolic hormones in geriatrics.

Abstract and Concrete Behaviour in Elderly Pschiatric Patients.

B. HOPKINS *and* F. POST, *The Institute of Psychiatry and The Bethlem Royal and The Maudsley Hospitals, London, England.*

The capacity of elderly psychiatric patients to assume the abstract attitude in K. Goldstein's sense was investigated by administering the Goldstein-Scheerer Cube Test, the Gel-Goldstein Colour Sorting Test, and the Weigl-Goldstein-Scheerer Colour Form Test. Fifty men and women in a unit for rehabilitable psychiatric patients over 60 were included in this study. All subjects were also tested with the Mill Hill Vocabulary and Raven's Progressive Matrices tests.

Clinically, in 16 patients the psychiatric disturbance was thought to be associated with organic brain disease, and 16 were held to be entirely free from any intellectual impairment; with an intermediate group of 18 patients slight intellectual deterioration was evident on clinical examination, but this was regarded by the psychiatrists to be in keeping with the mild memory difficulties so often seen in healthy old people; schizophrenics were excluded from this investigation.

Only 1 patient could be induced to assume an

abstract attitude in solving the problems presented by all 3 tests; and only an additional 9 succeded completely in 2 of 3 tests; the remainder showed varying degrees of "concreteness," but the classification of the patients on the basis of test results did not agree with the severity of intellectual impairment diagnosed by the clinicians.

In the absence of normal controls over 60 it is difficult to assess what the failure of most elderly psychiatric patients in assuming the abstract attitude signifies, but is it tempting to suggest that the increased "concreteness" of our patients might be an important causal factor in their psychiatric disorders. Some possible explanations for the discrepancy between the psychiatrists' findings and the psychologists' test results are discussed and lines of further investigations into the question of abstract and concrete behavior in elderly people are suggested.

The Psycho-Reactive Symptoms of Aging.

L. VAN DER HORST, *Department of Neurology and Psychopathology, University of Amsterdam, Amsterdam, Holland.*

Age is the sediment of our experiences in life; the calendar years are the crystallization of our historic totality. Our existence, our way of living, is expressed in our age; on the other hand it is possible to attribute a psychogenetic moment to our age. The fact that we are as we are is closely connected with our age, biogenetically as well as psychogenetically. The complicated nature of the psychic aspects of aging can be seen as the interaction of all imaginable psychophysic moments.

The difficulties associated with this problem are a result of the lack of a conception of mankind which can be applied to everybody, and accordingly a general psychoreactive contemplation is not possible. Thus, for those symptoms which are caused by aging, we will have to use tentatively no less than three different principles, each of which separately contributes to the psychogenesis of aging:

1. The psychic and pathopsychic phenomena in involution are a result, or rather attendant phenomena, of the involutional somatic processes.

2. The psychic involution-phenomena are a general psychic reaction to certain psychophysic phenomena which are aroused by involution.

3. The involution-phenomena are psychogenetically and psychologically understandable reactions of the aging man to his social and personal life.

The problem is, however, more complicated than is expressed in these three principles. Of the anthropologic qualities it is the age and sex which definitely influence the psychic personality, and these factors are in themselves at issue in aging, so that we cannot expect the phenomena characteristic of the climacterium in the female to account for the psychopathology of the male climacteric. We are not certain whether the psychologic structure of the climacteric corresponds to that of the presenium. Aging, although being a general human process, is so deeply rooted in our biologic structure and is so closely connected with the differentiation determined by age and sex, that the more subtle analysis of the psychic coherences has to reckon with it. Although it may seem that biogenetic, reactive, and psychogenetic factors cooperate in the aging-phenomena, a further detailed study of each of these factors must be considered desirable.

A Comparison of the Specific Dynamic Action of Proteins in Young and Old Male Subjects.

S. M. HORVATH *and* W. W. TUTTLE, *Department of Physiology, College of Medicine State University of Iowa, Iowa City, Iowa.*

One group of 6 males having a mean age of 77 years (72 to 84) and another of 8 with a mean age of 24 years (20 to 30) were studied. These subjects had been on a constant diet for a period of one year. The test meal consisted of the whites of eggs and ground beef yielding a protein content of 25 gm. Sufficient quantity of this preparation was made so that it could be divided into two portions, one being eaten by the subject and the other being analyzed for its nitrogen content.

Two determinations of the specific dynamic action were made on each subject. The oxygen utilization of these subjects was determined prior to the ingestion of the standard meal and at half hour intervals during a subsequent five hour period. The specific dynamic action of the older individuals was more variable than that observed in the younger age group. The mean response was also greater. The significance of these findings will be discussed.

Comparative Effects of Nutritional Deficiencies in Old and Young.

M. K. HORWITT, *Biochemical Research Laboratory, Elgin State Hospital, Elgin, Illinois.*

Most studies on the aged are conducted in the absence of a control group of young adults. This is not due to any oversight but rather to the circumstance that most institutions devoted to the care of the aged do not have enough young people around

to serve as satisfactory control groups. A state hospital provides such opportunities for long-term studies of old and young.

Observations on the requirements of the old and young for thiamine, riboflavin, niacin, and essential amino acids will be discussed.

Age Aspects of Environmental and Occupational Cancer.

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The causation of cancer has been related to both embryonal as well as senescing cell abnormalities, as exemplified by the Cohnheim's theory of embryonic cell misplacement and the senescence theory of cancer respectively—the latter being based mainly on the demonstration of statistical relations between cancer incidence and age, and the occurrence of cancers in tissues with age changes. The length of life span of organs and species and thus the aging dynamics have been thought to determine the length of latent period of cancers.

The acceptance of these concepts as to the role which biologic aging processes are assumed to play in the causation and development of cancers provides a rather dim outlook concerning the possibilities of developing effective control measures. However, numerous observations militate against these age theories of cancer genesis.

Thus sarcomas do not exhibit any differences in age distribution; several types of cancers have two age peaks, one during childhood or early adulthood, and another during advanced age (testis, central nervous system); cancers of different organs have marked variations in their age peaks of frequency, which cannot be related to organ specific differences in aging speeds; experimental tumors are as easily, if not more readily, produced in young animals than in old ones; the average length of latent period of experimental tumors is not related to the average life span of the respective species used, but evidently depends upon species specific metabolic differences unrelated to the aging process; observations made with environmental cancers in man demonstrate that aging processes have no part in their genesis and that the age relation of these cancers is purely incidental and determined by the age at onset of carcinogenic exposure and by the length of the preparatory and latent periods. This dogma is illustrated in a number of specific examples from the field of environmental and occupational carcinogenesis.

Action des Hormones Stéroïdes sur Différents Métabolismes de Gens Agés.

J. A. HUET, *Hôpital de Nanterre, 1, Place d'Iléna, Paris XVIe, France.*

Les effets biologiques et physiologiques des hormones stéroïdes sur les sujets âgés sont bien connus.

Cependant les expériences ont généralement été faites en appliquant un seul produit hormonal dont les effets ont été étudiés d'une façon unilatérale sur l'évolution d'un symptôme.

L'auteur après une série d'expériences sur les animaux, sur les hommes, est arrivé à apprécier approximativement la dose des différentes hormones stéroïdes nécessaire à la régularisation des métabolismes minéraux, liquidiens, ou lipidiens.

Cette détermination étant faite, l'auteur fait un implant avec le trocard, qui porte son nom, avec plusieurs comprimés d'oestradiol, de testostérone, de prégnandiol, et de corticostérone. Les résultats sont extrêmement satisfaisants.

L'auteur publie une série de cas cliniques avec des observations complètes avant et après traitement.

Organisation et Rentabilité d'un "Sénat" Dans une Usine Française de Fabrication d'Automobiles.

J. A. HUET, *Hôpital de Nanterre, 1, Place d'Iléna, Paris XVIe, France.*

En France de nombreux travailleurs passent toute leur vie dans la même usine.

Du fait des guerres, des invasions, des crises économiques, beaucoup d'entre eux ont été incapables de s'assurer une retraite décente avec leurs économies.

Leur habileté professionelle a diminué. Après 50 ans un ouvrier a de grandes difficutés à trouver un emploi; aprés 60 ans cela lui est absolument impossible.

Une usine française de fabrication d'automobiles: la Maison Chausson Frères à Paris a essayé de grouper des travailleurs âgés ayant été au moins quinze ans dans leur usine, dans un atelier spécial qui a été surnommé: "Le Sénat." Dans cet atelier ces ouvriers font des travaux adaptés à leurs possibilités physique et psychique. Ce "Sénat" a maintenant fonctionné depuis plusieurs années et donne le preuve de son efficience industrielle et de la rentabilité des capitaux engagés pour le faire vivre.

Un autre "Sénat" est actuellement en cours de création à l'usine d'automobiles "Renault".

De telles solutions, bien que parcellaires, apportent un soulagement certain à des vieux ouvriers fidèles à leur industrie.

Orientation Professionnelle des Travailleurs Agés.

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L'orientation professionnelle est obligatoire en France pour les enfants âgés de 14 ans, c'est-à-dire à la fin de l'enseignement primaire.

Les enfants, garçons et filles, sont examinés par des spécialistes qui éprouvent leurs qualités psychique et physique pendant la dernière année qu'ils passent à l'école communale.

La dépense que représente ces examens est supportée d'une part par l'Etat, d'autre part par les villes, et enfin par les industriels qui versent une taxe sur le chiffre d'affaires dont le bénéfice est réservé à l'orientation professionnelle.

Les résultats sont extrêmement satisfaisants: 83% de bons résultats aussi bien au point de vue social qu'économique.

Les conseillers d'orientation professionnelle reçoivent leur diplôme du Ministère de l'Education Nationale après trois ans d'école et deux ans de stage pratique.

Le même corps de conseillers d'orientation professionnelle pourrait être adapté à l'étude des problèmes du vieillissement. Des conseillers devraient être capables d'apprécier l'habileté physique et psychique des personnes âgées ou des travailleurs désadaptés par la maladie; ils pourraient leur donner des conseils qui leur permettraient de tirer le meilleur parti de leurs possibilités.

La dépense pourrait être couverte suivant les modalités acceptées pour l'orientation professionnelle de la jeunesse.

On peut être certain qu'une telle création rendrait les plus éminents services tant au point de vue social qu'économique.

The Management of Stress Incontinence in Women.

J. W. HUFFMAN *and* J. K. SOKOL, *Department of Obstetrics and Gynecology and Department of Urology, Northwestern University School of Medicine, Chicago, Illinois.*

The paper presents the results of a joint gynecologic and urologic study of the problem of stress incontinence in women. The cases studied were placed in one of several groups depending upon the etiologic factor causing the incontinence. It was found that the majority of the 225 patients included in the series had disturbances of the mechanism used for the voluntary inhibition of urination; these women were suffering from a true stress incontinence. Incontinence in the second largest group was due to intrinsic urethral or vesical pathology and required differentiation from true stress incontinence. The anatomic and physiologic factors involved in normal voluntary inhibition of urination and the pathologic states which cause urethral incompetence are discussed in their relation to the choice of management.

Inasmuch as stress incontinence may be due to one of several different etiologic factors, proper management depends upon the selection of the appropriate method of treatment for the individual case. Local treatment, surgical management, physical exercises, electrical muscle stimulation, and combined procedures are discussed as regards their applicability and results.

Aging, Health, and Employment.*

R. HUSSEY, *Council on Industrial Health, American Medical Association, Chicago, Illinois.*

I

Degenerative Diseases of Bone in the Aging.

W. K. ISHMAEL, *Department of Medicine and Arthritis Clinic, University of Oklahoma School of Medicine, and University Hospitals, Oklahoma City 4, Oklahoma.*

An effective management of degenerative arthritis is described. This management is based on the concept that this disease is the result of a traumatic breakdown of a previously deranged joint structure. The deranging factors include such things as osteoporosis, osteomalacia, and other demineralizing diseases of bone. In the treatment these demineralizing factors are corrected by such measures as steroid compounds and nutritional agents. Combined with this is the prevention of stress, trauma, and fatigue. Measures such as physical therapy, orthopedic principles, and general clinical management are part of the general treatment.

J

The Ratio Between Phospholipids and the Cholesterols of Blood as an Index of Human Atherosclerosis.

R. S. JACKSON, *and* C. F. WILKINSON, JR., *Department of Medicine, New York University Post-Graduate Medical School, New York, New York.*

A study of the relationship between the cholesterols and the phospholipids in human plasma, previously reported by us, demonstrated that a remarkably constant relationship existed between the free cholesterol and the phospholipids, and that this appeared to be independent of disease states. Because several workers in this field have recently emphasized the phospholipid—total cholesterol ratio as an index of atherosclerosis, our data were reexamined to determine whether this contention, logically inconsistent with our original findings, could be supported.

Diseases which are in the main the result of atherosclerosis (myocardial infarction, angina pectoris) or which are associated with an increased incidence of atherosclerosis were considered as individual groups, and the statistical agreement of the data with the predictions from the analyses of the composite group previously reported was tested mathematically. It was concluded that the phospholipid—total cholesterol ratio was inherently misleading since it expressed a relationship which was not a true biologic constant; and that the phospholipid—free cholesterol ratio was no more significant than the free cholosterol level as an index of atherosclerosis, since the value of the ratio could be predicted within very narrow limits from the free cholesterol level itself.

Genetics of Aging.

E. JALAVISTO, *Institute of Physiology, University of Helsinki, Helsinki, Finland.*

Genealogic data do not represent any existing population nor any that has ever existed, but in biologic studies their use might be justified because they give information not obtainable from any other sources.

The expectation of life, mortality, and secondary sex ratio are studied as functions of the longevity of both parents and of their age at birth of the children in a material comprising 18,000 cases collected from Finnish and Swedish genealogies.

Paternal longevity does not significantly increase the longevity of daughters and even in sons the effect is less than that of maternal longevity. High maternal age at birth shortens the expectation of life of the children, whereas paternal age is without effect. In the same parity groups the decrease of expectation with increasing maternal age is slightly less than the net effect.

The secondary sex ratio seems to be affected in a complicated way by all the factors: parental longevity, age at birth of the offspring, and birth order. Incontrollable differences in sex habits indirectly connected with aging may influence the ratio of male and female births, e.g., increasing size of the family seems to reduce the male preponderance in first and second children.

Age Changes in the Adrenal Gland.

E. P. JAYNE, *Department of Anatomy, George Washington University School of Medicine, Washington, D. C.*

Albino rats ranging in age from 17 to 780 days were selected as a source of material. The cytologic phase of the investigation is concerned principally with the structure and distribution of the chondriosomes, liposomes, and pigment granules. The mitochondria undergo degenerative changes and decrease in number with age. In conjunction with these studies the sudanophilic zones of the cortex were subjected to further analysis by appropriate histochemical procedures for the localization of ketosteroids.

Studies on Human and Experimental Hyperlipemia With and Without Atheromatosis.

G. -. A. JOHANSSON, *Fridhemsgatan 3, Stockholm 12, Sweden.*

A report is given of the clinical course and the therapeutic possibilities for groups of patients suffering from xanthomatosis with and without diabetes, from acute pancreatitis with disseminated diabetic xanthomatosis, and from Laennec's cirrhosis. All these conditions are associated with excessive hyperlipemia, involving total lipids as well as cholesterol and phospholipids. The diseases are characterized electrophoretically by an extraordinary increase in the lipid-bearing alpha- and beta-globulins. In several instances the patients have been observed for a period of more than ten years, and the development of their atheromatosis, its varying localization, and finally the pathologic-anatomic changes in the organs have been noted. In the pathologic examinations especial attention has been given to the presence of lesions in the liver.

In addition to the clinical studies investigations have been made in rabbits, in which animals atheromatosis was produced by feeding of cholesterol in oil emulsion. In these experiments observations were made on the relation betwen the various serum lipoproteins, on liver function as measured by function tests, and on the pathologic-anatomic structure of the liver, adrenals, and big vessels.

The intimate relations between the blood, the circulatory system, and tuberculosis infection are well known. Experimental tuberculosis in rabbits leads during the progression of the disease to characteristic changes in the picture of the blood proteins with increase in the alpha- and beta-globulins and coexisting reduction of the albumin. The increase of the big molecular alpha- and beta-fractions are at least partially dependent on an addition to the albumin attached lipids and proportionally as regards the total lipids as well as the cholesterol and the phosphatides.

The lipoprotein-complexes have been greatly increased by administration of overdoses of cholesterol in oil-emulsion to the tuberculous rabbits but coexisting alterations of atheromatous nature in the circulatory system were not produced. The lipoproteins were not studied with the aid of an ultracentrifuge.

The Effect of Age on the Skin Lipid Secretion in the Dorsal Region of the Hand.

S. G. JOHNSEN, *Division of Gerontology, Washington University School of Medicine, St. Louis, Missouri.*

Quantitative determinations were made of the skin lipid secretion in the dorsal region of the hand in 75 young, middle-aged, and old individuals. The lipids were collected twenty-four hours after rinsing the skin with ether, the skin area under investigation being protected with a celluloid hemisphere during the experimental period. The isolation of the lipids and the subsequent gasometric determination were performed as previously described by Kvorning and Kirk. The secretion averaged 13 micrograms per square centimeter of skin both in the men and the women and showed no certain dependence on age. This value is only about 5 per cent of the secretion found per square centimeter of skin in the forehead. No significant correlation was found in the old individuals between the degree of skin atrophy, and the observed lipid values.

Health Standards of Housing for the Aged.

R. J. JOHNSON, *Hygiene of Housing, Division of Engineering Resources, Public Health Service, Washington, D. C.*

Aging is accompanied by a decline of physiologic and psychologic functions, the onset of chronic illness, increase in the amount of all illnesses, reduced activity, and a greater susceptibility generally to stress. Basic principles of healthful housing have been developed for the young healthy adult. This paper will discuss the details of the special modifications of these basic principles that are necessary and desirable in housing for the aged because of the above mentioned characteristics of aging. These design details will be discussed in terms of protection against contagion and accidents and with regard to the fundamental physiologic and psychologic needs of older persons.

A Study of the Mammary Glands in Mature and Old Mice of the C_3H and C_3H—Strains with Special Reference to the Occurrence of Hyperplastic Nodules.

E. E. JONES, *Department of Zoology, Wellesley College, Wellesley 81, Massachusetts.*

Mammary glands of mature and old mice of inbred strains with and without the mammary tumor inciter are being studied to determine the changes associated with aging and the role of the mammary tumor inciter in the production of hyperplastic nodules. Observations on the Andervont and Wellesley sublines of the C_3H strain, with and without the mammary tumor inciter, will be reported.

The Wellesley C_3H strain, started with mice from the Andervont strain in 1938, and separated from it since that time, has maintained a high tumor incidence comparable to that of the parent stock. It has, however, developed certain characteristic differences. Within the last two years, a wide variation in the age at which tumors develop has been evident. This has made possible the study of mammary glands from a highly susceptible strain, all of which supposedly carry the mammary tumor inciter, over an age span of 6 to 22.5 months. These changes will be described and comparisons made between the glands of aged C_3H and C_3H—mice with particular reference to the number and type of hyperplastic nodules and the role of the mammary tumor inciter. A classification of the mammary tumors in the various age groups will be presented.

K

An International Program For Welfare of the Aged.

D. C. KAHN, *Social Services Section, Division of Social Welfare, United Nations, New York.*

A brief description is presented of the program of research and action by the United Nations and specialized agencies and considerations of ways in which international organs and non-governmental organizations can contribute to an integrated program to protect the rights and promote the well-being of aged persons.

The Universal Serologic Reaction in Aging.

R. L. KAHN, *University Hospital, University of Michigan, Ann Arbor, Michigan.*

Studies on the universal serologic reaction in health and disease suggest that this multiquantitative precipitation reaction with lipid antigen is an indicator of tissue break-down. The assumption is that certain lipids liberated in normal catabolism undergo chemical changes which render them foreign to the body and antigenic. These lipids then call forth antibodies which give the universal reactions noted in health. Different normal individuals generally give universal reactions of serologic patterns which vary quantitatively; the serologic pattern of any given individual is relatively constant. These findings suggest quantitative variations in the antigenic lipids liberated in different normal individuals and constancy in the antigenic lipids liberated in the same individual. In disease, the universal reaction is intensified, presumably because of increased tissue break-down, resulting in increased liberation of antigenic lipids. The question arose as to what extent the universal reaction will be affected by the aging process. In the present report, universal reactions obtained in different age groups will be considered.

Comparative Twin Data on the Genetic Aspects of Mental Disorders in the Involutional and Senile Periods of Life.

F. J. KALLMANN, *Department of Medical Genetics of the New York State Psychiatric Institute, Columbia University, New York, New York.*

Comparative twin data are helpful in investigating the challenging problems posed by severe maladjustment to aging and old age. It is indicated by an analysis of differential psychosis rates for the cotwins, siblings, and parents of a consecutive series of 3,205 twin index cases with and without psychotic phenomena in the period of senescence that psychoses tend to occur more frequently among the blood relatives of psychotic index cases than they do among those of senescent index cases without psychosis. The general trend of these data is clearly in the direction of specific genetic mechanisms for the different types of psychosis studied.

Further advancement in the understanding of involutional, arteriosclerotic, and senile psychoses will require the planning of more basic research in relation to the interplay of such complex determinative components as age-susceptible personality traits, reduced adaptive (homostatic) plasticity, and those gene-specific biochemical phenomena controlling growth and decline. It seems certain, however, that adequate progress in the investigation of the psychiatric problems of geriatrics will be difficult without a more thorough knowledge of the genetic background factors, which primarily determine man's variable capacities for maintaining a state of physical and mental health throughout life, including the senium.

Optional Retirement Plans—Their Implications for the Industrial Physician.

A. G. KAMMER, *Department of Occupational Health, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pennsylvania.*

Optional retirement plans usually carry the stipulation that the employee should be able to perform satisfactorily his regular job or one which is available to him. The industrial physician may be depended upon to have competence in the early recognition of physical and mental abnormalities, but this is quite a different matter than competence in the measurement of capacities to perform. The latter must for the most part await the development of knowledge through research by physiologists. Until such knowledge is developed, the industrial physician can do no better than express opinions based upon the findings of clinical abnormalities, upon an acquaintance with the work situation, and upon clinical judgment. He will do well to dodge assignments in this area unless there is prior agreement by the concerned parties to accept his opinions without controversy.

Factors Influencing the Health Behavior of Older Persons

O. J. KAPLAN, *Department of Psychology, San Diego State College, San Diego, California.*

Older persons as a group are less likely than young adults to obtain periodic physical check-ups, to participate in mass x-ray surveys, and to respond to health campaigns. They seem particularly vulnerable to advertising in behalf of nostrums and drugs of doubtful value. Not all mass media are equally effective in reaching and influencing older persons. Sensory deficiencies in the later age groups present special problems in communication. Opportunities for acquisition of health knowledge through interpersonal contacts vary appreciably with age. Many of the age differences observed are the outcome of variations in education, income and other factors, rather than the consequences of aging per se. Marked individual differences exist at all adult ages. The psychologic basis for health behavior in the later years is described. Conclusions are documented with data gathered in a San Diego health education study.

Therapeutic Reversal of a Common Clinical Manifestation of the Normal Aging Process —Decreased Joint Mobility.

W. KAUFMAN, *540 Brooklawn Avenue, Bridgeport 4, Connecticut.*

Joint mobility is impaired with increasing age, as shown by actual measurement. Proper nutritional therapy will improve joint mobility at any age.

The writer's clinical method of measuring joint mobility permits simple, accurate, and reproducible determination of a patient's Joint Range Index — a numerical value which summarizes the patient's joint status. Measurement of the Joint Range Indices of more than 500 male and female patients shows that joint mobility decreased linearly from the youngest to the oldest 5-year age groups. At any age, joint mobility can be improved (often to full ranges) through the proper use of niacinamide therapy, given as a supplement to the patient's diet. The niacinamide treatment developed by the writer has caused no untoward effects; indeed, patient's subjectively notice improvement in their general health as a result of therapy, and objectively they seem younger.

Discontinuance of niacinamide therapy causes a gradual regression in joint mobility until the patient reaches the level of joint mobility that he had before treatment was started. Reintroduction of niacinamide treatment results once more in improvement in joint mobility.

The Effect of Age on the Smooth Muscle Layers of the Human Colon.

T. KHEIM, *Division of Gerontology, Washington University School of Medicine, St. Louis, Missouri.*

The weight and creatine content of the smooth muscle layers of the coecum, the ascending, transverse, and descending colon, and the sigmoid were determined in fresh specimens from a group of young and old individuals. The muscle layers of the various sections of the colon were carefully dissected out with precautions to avoid evaporation. The wet and dry weight and the creatine content of the isolated smooth muscle sheaths were subsequently determined. The results of these measurements will be reported.

Adequacy and the Origin of Old Age Security.

C. A. KIEHEL, *Research Studies, Washington, D. C.*

In this country early attempts to provide old age security date back to the revolutionary era. In all, there were four different approaches to the problem in the New World of North America.

The first, an inheritance from Europe where feudal practices and attitudes lingered on in the eighteenth century, was the concept that service that faithfully fulfilled its duties merited reward in old age. Pension programs for veterans, clergymen, and college professors fall into this category. Prior to the nineteenth century, the only pension in this group that in any sense provided adequate security was the scheme inaugurated for the revolutionary veteran which never would have passed Congress except of the amount of back pay due the troops.

Self help as a method of preventing destitution in old age because of inability to save furnished a second motive. From the adequacy viewpoint, the old age security efforts of public school teachers and trade unionists were little if any more effective. At best, their efforts provided, as in case of ministers, no more than a few uncertain dollars a year.

Superannuation primarily the result of technologic advance that overnight introduced the factor of obsolescence and cut down labor requirements, but also the by-product of physical incapacity on jobs which required physical vigor, explain the bulk

of the pension systems in this country during the seventeenth and eighteenth centuries and include all that measured up to the military disability standard of half-pay. Army and navy retirement systems, policemen and firemen pensions, and private industrial plans belong in this group. Without exception, the employer was responsible for their instigation with the aim of getting rid of deadwood. Problems related to morale and the recruiting of personnel required them, at least to offer, pensions that met the adequacy standards of the day.

Physical Characteristics, Tolerences, and Susceptibility to Accidents.*

B. KING, *Medical Division, Office of Aviation Safety, Civil Aeronautics Administration, Washington, D. C.*

The Public Health Nurse.*

H. E. KINNEY, *Missouri State Nurses' Association, 225 West McCarty Street, Jefferson City, Missouri.*

The Lengthening Span of Working Life: International Perspectives.

D. KIRK, *Division of International and Functional Intelligence, Department of State, Washington, D. C.*

The "normal" working life has commonly been considered to be 45 to 50 years (e.g.—from age 15 or 20 to age 65). In actual practice this span of working life has until recently been the exception rather than the rule. In many of the underdeveloped countries today (e.g.—in India), and in our own past, less than two-thirds of the children born attain age 15, and only about one-fifth survive to the "normal" age of retirement at 65.

Modern achievements in reducing deaths are making possible a much longer working life for the average person. Death rates are observed to be falling in every country for which adequate vital statistics are available. Deaths at ages under 45 from causes other than accident or violence may soon become a rarity in the Western world. According to current mortality rates in the most advanced countries, which probably represent the near future for the West in general, 95 per cent of the children born will reach age 15. Of those entering the labor force ages over 90 per cent will reach age 45 and over 70 per cent will attain age 65. (Charts showing international comparisons.)

The dramatic reductions of mortality and past declines in the birth rate are bringing about a rapid aging of the population in the labor force ages in Western countries. In Western Europe the age group 45 to 64 is growing very rapidly, at a much faster rate than the total population. By contrast, the number of young adults, and especially young men, has declined since 1940. (Chart showing international comparisons.)

The efficient use of older workers is therefore one of the most important manpower problems facing Western countries. In the long run the lesser mobility and flexibility of older workers may well pose serious social and economic problems for our highly fluid industrial economies. Conversely, a larger proportion of responsible older people in the population may provide an element of stability needed in a rapidly changing society.

The Role of Sensory and Motor Ability in the Measurement of Senescent Decline in Intelligence.

R. W. KLEEMEIER, *Moosehaven Research Laboratory, Orange Park, Florida.*

That intelligence test scores from maturity through senescence have an inverse relationship to age is well established. It is also well known that rates of senescent decline in intelligence vary with the capacity being measured. Both this differential and, indeed, the general decline may in part result from peripheral sensory and motor impairment rather than central deterioration.

To investigate this possibility an analysis of test data obtained from 87 males, aged 65 to 90, will be presented. The test battery includes the Wechsler-Bellevue intelligence scale, pure tone and speech reception tests, visual acuity, and certain motor tests. The implication of the results for the assessment of intelligence in senescence will be stressed.

Cancer in Aging—Its Relation to the Clinical Course of the Disease.

C. T. KLOPP, *George Washington University School of Medicine, Cancer Clinic, 1339 H. Street, N. W., Washington 5, D. C.*

Cancer is not a single disease. It is generally classified either according to the anatomic site of origin of the primary tumor or to the type of cell from which it originates. Regardless of the anatomic gross or microscopic classification, there is still great variation in the clinical course of the disease among patients within some groups. This must reflect host

and/or tumor factors which are influenced by environment, some of which may be related to aging.

In order to further subdivide types of cancer which are of similar origin and microscopic appearance, the biologic behavior of each case of the given type should be reviewed and an attempt made to define specific sub-groups by characteristic clinical course. Such sub-groups could then be analyzed for factors which correlate with aging.

Adenocarcinoma of the breast is one anatomic type of cancer which can be divided into at least two sub-groups according to biologic behavior, each sub-group having a different age distribution. The differences in biologic behavior of these patients can be demonstrated by a comparison of the response of both tumor and host to endocrine therapy. This, and other examples of the correlation of aging with the clinical course of cancer, will be presented.

Industry Looks at the Older Worker.*

T. G. KLUMPP, *Winthrop-Stearns, Inc., 170 Varick Street, New York, New York.*

I. Role of Deficiency of Sex Hormones in Processes of Aging in Man and Male Animals.

V. KORENCHEVSKY, *Gerontological Research Unit, Oxford, England.*

Deficiency of sex hormones was often considered to be the main cause of aging. In order to elucidate this point, experiments were performed on male rats of various ages, including senescent animals, in order to study the changes produced by castration or aging. For the same purpose, available data on the effects of castration and climacteric in man were investigated. The castration and climacteric changes were compared with those produced by aging in male rats and man.

This comparison indicates that, although some of the changes are similar both in testicular endocrine deficiency and senescence, several others are different. Both experimental results on rats and observations in man are in favour of the supposition that absence of, or deficiency in, gonadal endocrine secretion accelerates some processes of aging. Testicular deficiency, however, cannot be considered as a primary basic cause of senility. On the contrary, these basic and various secondary causes probably produce senile deterioration in the gonads as well as in the other endocrine glands, organs and tissues, in this way converting them into additional secondary causes of aging. The castration syndrome is not senility, nor vice versa. However, senile deterioration of each organ or tissue, including that of the testis, starts a special new vicious circle in the processes of aging, aggravating and accelerating them towards death.

II. Treatment of Senescence in Male Rats by Hormones and, as Suggested by these Experiments, the Components in Human Senility Syndrome Suitable for Hormonal Treatment.

V. KORENCHEVSKY, *Gerontological Research Unit, Oxford, England.*

In the previous report were given results of experiments on male rats which demonstrated (1) considerable difference between the castration symptoms (i.e., deficiency in sex hormones) and the processes of aging, and (2) some similar features between them.

This fact raises two questions, namely, whether sex hormones might be useful in the treatment of senility, and if so, whether it is possible to define in which cases of senility they might be helpful, and even perhaps necessary.

In another of our previous papers (Korenchevsky, Paris, and Benjamin, *J. Gerontol.*, 5: 120-157, 1950) it was demonstrated that the hormonal treatment of senescence in female rats produces some apparently useful anti-aging effects, although together with some harmful by-effects.

In the present report are given the results of experiments on senescent male rats, normal intact and castrated, treated with sex, thyroid, and adrenal hormones.

These experiments demonstrated considerable difference in reaction to treatment with sex hormones between intact senescent females and males, namely, absence of reaction, or some weak anti-aging effects in the males. On the contrary, in the castrated senescent male rats, these effects were very pronounced.

On the basis of the author's experiments and those performed by other investigators on men, answers are suggested to the two above-mentioned questions, namely, whether and when sex hormones might be useful in the treatment of male senility and why there is a difference between senescent male and female rats in the case of such a treatment.

The International Gerontologic Association and Rapid Progress of Gerontology.

V. KORENCHEVSKY, *Gerontological Research Unit, Oxford, England.*

In 1950, at the first International Gerontological Congress in Liège, the gerontological societies of various countries, united themselves into The International Gerontological Association. The main, if not exclusive, aim of this Association is to promote and organise *rapid* progress in *research* on aging, since the final solution of all basic gerontologic problems depends on biologic and medical research in this field.

The establishment of several gerontologic research centres in all civilised countries, the accumulation of large funds necessary for their work, and international cooperation in gerontologic research are the main conditions for the rapid progress of gerontology.

The Association, strong in the united and organised brain-power and authority, seems to be the only agency which can achieve these aims. There are practical and practicable ways and means for the Association to promote and organise comparatively rapid progress in gerontology.

For the consideration and criticism of the Second Congress, the present report defines and suggests these ways and means and, in particular, the desirable organization of international gerontological congresses.

At present the international biologic and medical congresses take the form either of large symposia, on a world-wide scale, or, more rarely, of so-called institutes, in both cases with numerous reports which later are published. Both these forms, in spite of their importance and useful results, are insufficient in promoting *rapid research* progress. For this aim, by the addition of a special Research Section, a revised form of international gerontological congresses is suggested.

Nitrogen Balance in Elderly Individuals as It Is Influenced by Various Other Substances.

W. B. KOUNTZ, *Division of Gerontology, Washington University School of Medicine, St. Louis, Missouri.*

The nitrogen balance of a group of older people was studied over a two year period and some of the factors that influenced nitrogen retention and loss were determined. Such factors as total caloric intake and variable protein in the diet with a constant caloric intake were evaluated. In addition, the influence of certain hormones, particularly estrogen and androgen, as well as cortisone and thyroid were evaluated from the standpoint of their influence on the nitrogen retention.

It was found that most old people were in a negative nitrogen balance on a protein intake of less than 1 gm. per kilogram of body weight per day; that such factors as infection, etc., would likewise tend to produce a negative nitrogen balance.

Estrogen and androgen appear to have a protein sparing action, and androgen produces a more definite result than estrogen. Cortisone, when given temporarily, causes a more negative nitrogen balance, but this is overcome after a period of about ten days due to an increase in appetite. This substance has a stimulating and exhilarating effect on the body mechanism, so much so that many of the patients felt considerable improvement. Thyroid appears to have a very mild influence on nitrogen balance, causing a more negative nitrogen balance. This substance, again, increases the appetite and the food intake is generally improved.

Gerontologic Concern in Reference to the Population Problem in Japan.

Y. KOYA, *The Institute of Public Health, Tokyo, Japan.*

At present the majority of the Japanese people are not used to thinking of the health situation of the old people. The reason may be that the average lifetime of Japanese is being prolonged continuously since after the war. In addition most Japanese leaders are only concerned about the adjustment of the rapidly growing population of this country and never consider the idea of the gerontologic problem. This is wrong, of course, because the prolonging of the average lifetime of Japanese is not due to the improved health situation of the old people, but to the decrease of infant mortality.

Observaciones Sobre la Psicopatología de la Edad Avanzada.

E. E. KRAPF, *Maipú 1266, Buenos Aires, Argentina.*

El autor destaca que la psiquiatría de la edad avanzada muestra una preferencia injustificada para los aspectos intelectuales de los cambios de personalidad en la edad avanzada. Oponiéndose a ésto, insiste en la importancia de los problemas emocionales, y en la estructura de la vivencia del tiempo que depende, a su vez, del fondo emocional e in-

stintivo de la persona y de su capacidad de mantener una actitud de iniciativa.

Desde el punto de vista psicológico, considera el envejecer como una pérdida progresiva de la iniciativa y prospección frente a una preponderancia creciente de los hábitos y de la retrospección. Basándose en esto, analiza el trastorno mnésico típico de los viejos no demenciales como caracterizado por dificultades en la adquisición de material nuevo, coexistentes con una capacidad exagerada para el recuerdo de acontecimientos precoces. La conocida ley de Ribot debe ser reformulada a la luz de experiencias que hacen sentir a ciertos viejos que un recuerdo realmente preciso de experiencias juveniles no es posible sino en la vejez.

La "atrofia del porvenir" qu resulta de la inversión gradual en la proporción de iniciativa y habituación, halla una expresión más clara aún en la estructura de las neurosis seniles. Aparte de la facilitación de regresiones profundas en el sentido psicoanaltíco, puede ser demostrado, en el nivel de la experiencia existencial, que la falta de un futuro debe conducir a una concepción melancólica de la vida, a la avaricia y a tentativas inadecuadas de recuperar un futuro de corto alcance a través de satisfacciones inmediatas de necesidades físicas y emocionales en un nivel muy bajo. En este contexto, el autor lo considera significativo que ciertas conductas seniles que en su estructura motivacional son muy similares a las del niño, se denominan, corrientemente, infantiles. Esta concepción sirve como marco de referencia para una formulación de los principios conductores de una actividad psicohigiénica razonable.

Usando el material biográfico coleccionado por Charlotte Bühler en su libro sobre "El Curso de la Vida Humana," y complementándolo con material adicional, el autor destaca la necesidad de favorecer la conquista de un futuro personal seguro e indestructible para la persona envejeciente. Implica que un desarrollo sano de instintos y valores asegurará una configuración sana de la vida emocional en la edad avanzada, y, en consecuencia, una disminución considerable de la patología mental.

Expansion and Constriction of Life Activities During the Adult Life Span as Reflected in Organizational, Civic, and Political Participation.

R. G. KUHLEN, *Department of Educational Psychology, Syracuse University, Syracuse, New York.*

Maturing and aging during the adult life span may be described as following a pattern of emerging responsibility and activity, maintenance of activity on a plateau, followed by constriction of activity and relinquishment of responsibility. These changes, and the shift in cultural roles thus implied, represent important aspects of the aging process since they likely have important relationships to the quality of adjustment, to the maintenance of capacities, and to the self-regarding attitudes of the individual in later maturity.

Although evidence on job status (employed-retired), income level, and size of immediate family unit bear on the questions raised and will be presented, the main concern of this paper is to present evidence regarding participation in activities and acceptance of responsibilities which are relatively voluntary (political and civic activity, organizational activities, church attendance) in contrast (for example) to involuntary relinquishment of job responsibility or movement of children out of the home.

The data were obtained by mailed questionnaire. In the fall of 1947 *Time Magazine* sent a questionnaire to practically all college graduates in the United States whose surnames began with "Fa." A 59 per cent response totaled some 9,000 cases. Respondents included members of the classes of 1879 through 1947, thus roughly ages from the early twenties through 90. Data were analyzed by year of graduation which probably closely reflects chronologic age.

Expansion and constriction of life activities are clearly apparent in the present data, the main features being the relatively long period over which expansion continues and the late age to which activities persist. Civic (local community) participation seems to increase until the early forties and then to decline, whereas political activities (voting, reading, and discussing politics, sending telegrams) increase until about 50 and are maintained until very old age before any decline is apparent. Age at which decline begins seems related to amount of initiative and energy involved in the activity. Detailed age trends for individual activities will be presented.

The Rorschach Test Performance of 100 Elderly Males.

R. G. KUHLEN *and* C. KEIL, *Department of Educational Psychology, Syracuse University, Syracuse, New York.*

Rorschach responses were obtained from 100 men (50 age 65 to 70 and 50 age 75 to 80), all of whom were residents in a county home housing mostly old people. The subjects were mainly men of low educational and occupational level; over one-third were single. Although existing data from other types of

studies would lead to the expectation that groups of these two ages (one decade apart in old age) would differ in adjustment, little in the way of statistically significant differences appeared in the case of the Rorschach responses. However, statistical contrasts with such "normative" data as are available in the literature (such literature briefly to be reviewed in the paper) showed marked and highly reliable differences. The total number of responses to the ten cards, for example, averaged 16 compared with an average of 33 for Beck's recently reported normative group. There were also points of similarity with young adult performance. For example, the responses of the old-age group were distributed among W, D, Dd, and DW in about the same proportions as are younger adult groups. In addition to contrasting two old-age groups one decade apart and contrasting old age with young adulthood, the paper will point up some of the difficulties to be encountered in psychologic research on old age using the Rorschach test or utilizing institutional populations.

Variations in Autonomic Ganglia in Man Which Are Related to Aging.

A. KUNTZ, *Department of Anatomy, St. Louis University School of Medicine, St. Louis, Missouri.*

Variations in the cytologic structure in the autonomic ganglia in man in successive age groups are common, but they are not related solely to age. Cytologic variations occur both in the ganglion cells and in the neuroglia. Those which are common to all the ganglia in a given age group may be regarded as related to aging. Those which occur only in the ganglia of some individuals in the same age group may be regarded as related to disease. The appearance in exaggerated form of variations which are common to all the ganglia in the same age group probably is causally related to pathologic states.

Variations which may be regarded as related to aging include (1) growth and differentiation of ganglion cells and neuroglia to maturity, (2) development of secondary dendrites and other dendritic modifications in some ganglion cells, (3) deposition of pigment in moderate amounts in some ganglion cells, particularly after the age of 30 years, (4) modifications in the histochemical constituents of the ganglion cells, including depletion of the chromidial substance, and (5) histochemical changes in the neuroglia and a progressive increase in the numbers of interstitial and capsular neuroglial cells.

A Study of the Mitochondria in Relation to Age.

S. M. KURTZ *and* W. ANDREW, *Department of Anatomy, George Washington University School of Medicine, Washington, D. C.*

A critical study has been undertaken of the mitochondria in the liver, pancreas, kidney, submaxillary gland, and parotid gland of the rat, in relation to age. In particular, an attempt was made to correlate possible changes in morphology of the mitochondria with the occurrence of oncocytes in these organs. Classical methods of fixation and staining were used, along with observations with the phase-contrast microscope.

Results indicated a progressive, almost uniform change in the size and shape of the mitochondria in the salivary glands as the age level increased. In the submaxillary gland, the mitochondria were short fat rods in the young animals. These gradually changed to long, tenuous filaments in the senile animals. There also appeared to be a diminution of mitochondrial material in senile rats. In the parotid gland, the mitochondria changed from elongated types in the young animals to short plump types in the senile animals. In both of these glands, changes in the morphology of the mitochondria were noted before the occurrence of oncocytes, and the patterns of the mitochondria in oncocytes were not radically different from those of the surrounding cells.

In the kidney, pancreas, and liver, striking changes in the morphology of the mitochondria were found in the senile animals. However, these changes appeared generally in small areas, suggesting local pathologic conditions related to extrinsic factors, such as sclerosis of blood vessels.

Studies of Special Groups of Older People.*

R. I. KUTAK, *Department of Sociology, University of Louisville, Louisville, Kentucky.*

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Summer Camping for Older People.

G. LANDAU, *The Hodson Center, The Bronx, New York, New York.*

An experience of camping during a two-week post-season period has demonstrated that older persons can make constructive use of camping. Staff working with older persons have long been aware that a few older people could leave the city to have the benefit of a change from the humdrum of daily life and enjoy the stimulation which camp life can

give. It was expected that the beauty and novelty of country surroundings and the benefits of regular and healthy meals would bring pleasant experiences to the participants. However through the use of group work techniques, campers manifested intense and sustained delights in every aspect of this community living. The pleasure of the old folks was such as to make them ignore inclement weather, to make the most of every activity, to plan and carry out their own group programs each evening. Several members developed a hitherto unsuspected initiative which has carried them into new roles of activity upon their return to the city. All of the group formed closer relationships to one another and here again the dominant need of the aged became apparent. In spite of the outward appearance of satisfaction and euthusiasm for the camp, the staff was able to recognize that many of the registrants and campers were frightened and insecure. The role which staff played in giving support to individual campers and the group as a whole gave the participants a new acceptance of themselves.

Chemical Morphology of Elastic Fibers.

A. I. LANSING, *Department of Anatomy, Washington University School of Medicine, St. Louis, Missouri.*

Comparative analyses of elastin from young and old aortas reveal a pattern of characteristic age changes of increase in specific gravity, calcium, and free carboxyl groups. There is an underlying shift in relative amino acid composition. In contrast to the aorta the pulmonary artery shows minimal age changes.

Digestion of elastic fibers by elastase reveals considerable internal structure. Elastic fibers appear to be composed of compounded, helically coiled fibers.

A Cytoplasmic Factor in Aging.

A. I. LANSING, *Department of Anatomy, Washington University School of Medicine, St. Louis, Missouri.*

Selective breeding studies on rotifers indicate that a cytoplasmic factor is operative in aging. The data indicate that aging begins at the time of cessation of growth, that as aging is accelerated growth is also accelerated but maximal size is reduced. It is possible quantitative variations in a single factor determine growth, growth regulations, and aging.

Intracellular Calcium in Aging.

A. I. LANSING, *Department of Anatomy, Washington University School of Medicine, St. Louis, Missouri.*

Data will be reviewed showing that, in a wide variety of organisms, calcium accumulates characteristically in the region of the cell surface. Experimental removal of calcium tends to increase life span. The suggestion is made that calcium is bound to ribo-nucleoprotein at all surfaces and that age changes in the latter are reflected in calcium binding.

A Community Plans a Recreation Program for Elderly People.

H. G. LAUE, *Division on Family and Child Welfare, Welfare Council of Metropolitan Chicago, Chicago, Illinois.*

Planning begins when an agency or an individual calls together a group of people representing the recreational resources of the community, people interested in the possibility of extending community programs to serve all ages. Such a committee will get the pertinent facts about the older people in the community, it will survey existing programs for older people, both those which are planned specifically for them and those designed to meet special interests, in order to discover the extent to which older people are participating or might be welcome to participate.

The committee will then ask the specific appropriate agencies to employe a qualified staff with special responsibility for drawing this age group into the agency programs, both in special groups of their own and in such activities as music, drama, art, public affairs. It will make information about existing facilities and activities available to older people in the community through all possible channels.

An important job will be that of dramatizing to the community and to the older people themselves their abilities and possibilities for enjoyable use of their leisure time through a community-wide hobby show. Such an affair should include demonstrations of such hobbies as music, dancing, and drama.

The committee has a dual responsibility in the realm of leadership training, (1) for offering such training to the older people themselves, and (2) seeing that professional training of group workers, recreation leaders, librarians, etc., include an understanding of the older person.

Such a committee will consider the appropriate functions for both private and public agencies in this

endeavor. It will take special cognizance of the needs of homebound older people, to plan volunteer friendly visitor programs, hobby shows, and the introduction of activity programs into homes for the aged and nursing homes.

Cholesterol and Man.

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In health cholesterol is the mother substance of the adrenal cortical hormones, the sex hormones, and the bile acids. It appears in the form of crystalline esters in the cells of the adrenal cortex, the interstitial cells of the testicle, and the cells of corpora lutea.

In disease cholesterol in ester form is the cause of atherosclerosis. It is responsible, for example, for at least 90 per cent of coronary artery disease, with due allowance for syphilitic and other forms of arteritis. The esters occur as "fluid crystals," spherocidal droplets with the consistency of grease that show Maltese cross images under polarized light. Cholesterol is esterified in the liver, with *excess* crystals deposited in liver cells. These excess crystals are removed by Kupffer (scavenger) cells which when loaded become free in the liver sinusoids. They are released from the sinusoids at intervals into the circulation in showers, are carried to the lungs, pass the lung capillaries by ameboid action, and are pumped into the systemic circulation. They invade the arterial intima in waves at points, such as the subepicardial portions of the coronary arteries, where the rapid arterial stream is slowed intermittently. The esters in the cholesterophages stimulate growth of connective tissues about the cells. Scarring, following repeated waves of cells, in time thickens the intima and narrows the lumen, thus favoring thrombosis or insufficiency (Leary, *Arch. Path. 47:* 1, 1949). Cholesterol is the cause of xanthomas, which are deposits of cholesterophages. It is the cause of cholesterol pneumonia and is the sterol in Hand-Schüller-Christian disease.

Cholesterol is looked upon as a carcinogen or cocarcinogen (Hieger, *Brit. J. Cancer, 3*: 123, 1949). It stimulates in ester form the growth of epithelial cells, as in benign renal adenomas, with a close relation to adenocarcinoma of the kidney in age (Leary, *Arch. Path., 50:* 151, 1950). Esters occur in many tumors probably as stimulants of cell growth.

With age cholesterol metabolism becomes less efficient, excess esters accumulate and become a more common menace to the arteries and potential stimulants of tumor growth.

An Analysis of the Residents of Toronto's Lambert Lodge.

C. LEBER, *Lambert Lodge, 350 Christie Street, Toronto, Ontario, Canada.*

Lambert Lodge, governed by a City Councillors' Committee and operating under the Ontario Homes for the Aged Act, temporarily is housed in a former army hospital and cares for three types of aged persons: ambulatory, infirm, and mentally incompetent, none of which require hospital care. The total case load is 710. The staff numbers 270. Featured are rehabilitation services, recreation, occupational therapy, Women's Auxiliary, roster of cooperating clergymen.

The population comprises 423 ambulatory residents, 173 infirm or bed cases, and 114 mentally incompetent persons. Diagnosis of all indicate: 30 per cent suffer from diseases of the blood system; 20 per cent from neurologic or deteriorating senility; 15 per cent from systemic diseases; heart and other degenerative diseases are prevalent. Many of the ambulatory have physical deformities.

The opening of this municipal home over a year ago attracted handicapped and very infirm older long stay patients in hospitals and from the community. Almost as many more are applying for admission and present little difference in characteristics of conditions.

In Toronto the number of people who can be accommodated in private homes for the aged is 1,700. Hospital beds are insufficient, especially for the chronic and mentally ill. Increasing longevity shows that the Lambert Lodge type of homes are needed.

The Relationship of Aging Changes to the Development of Arteriosclerosis in the Human Aorta.

M. LEV *and* C. M. SULLIVAN, *Department of Pathology, University of Illinois College of Medicine, Chicago, Illinois.*

The aorta grossly during fetal life and after birth presents linear formations at points of mechanical stress. In the first few years of life and thereafter fat is grossly seen involving these areas. Histologic examination of the original white streaks reveals a proliferation and reorientation of elements of the intima with concomitant changes in the adjacent media. Such changes are present to a lesser degree in other parts of the aorta. The intimal change consists of a proliferation in the direction of blood flow of elastic, muscle, and collagenous fibers with an increase in ground substance. The adjacent media shows (1) a thickening and widening of the elastic nets, with an

accentuation of their longitudinal component, (2) a hypertrophy of the muscle cells, and (3) an increase in ground substance. This process may be called endarteriohypertrophy.

Beginning in fetal life and progressing with age, degenerative changes occur in plaques of endarteriohypertrophy. These consist of (1) dissolution of elastic fibers, (2) degeneration of muscle cells, (3) increased and decreased staining of the ground substance, (4) increased and decreased staining of the reticular and glycoprotein components of the basement membranes around elastic and muscle tissue, (5) appearance of degenerated cell forms in the intima in addition to inflammatory cells, (6) an increase in collagen fibers with the production of fibrotic and calcific zones, and (7) the appearance of vasa vasorum in the media and even in the intima. This process may be called endarteriosclerosis.

In some spots of endarteriosclerosis fat is deposited in the ground substance, muscle fibers, and on elastic fibers. With progressing age, these fat accumulations are larger, forming elevated zones. Secondarily, macrophages appear, and later a marked increase in collagen fibers ensues. This process may be called endarteriosclerosis with atheromatosis.

Independent of the above process, degenerative changes in the elastic tissue with calcification occur in the media at about 20 years of age, and progressively thereafter. This may be called senile arteriosclerosis.

Thus, it may be postulated that endarteriosclerosis is related to hydrodynamic stress—specifically tangential forces and lateral pressure—leading to endarteriohypertrophy and secondary degenerative changes—endarteriosclerosis. The latter is the nidus for atheromatosis with its still further secondary degenerative changes.

Quantitative Measurements of Longevity and Aging.

W. H. LEWIS, JR., *The Memorial Hospital for Cancer and Allied Diseases, 135 East 64 Street, New York 21, New York.*

Quantitative measurements are necessary to more precise evaluation of the potentials for longevity and aging. By application of mathematical methods, such potentials can be given a longevity or anti-longevity rating, a senescent or anti-senescent rating, a rejuvenation or anti-rejuvenation rating.

These quantitative measurements concern:

(1) The relation of the average lifetime to acquired diseases. Gains in the average lifetime may be ascertained by calculating the effect of the elimination of various causes of death.

(2) The removal of the effect of acquired disease, the relation of physiologic age to the chronologic age. Physiologic age is not static but continues on a moving course like a chain reaction, subject to mathematical treatment. Its course can be correlated in linear and curvilinear equations, with or without change or inflections. Such equations can include a single variable physiologic function or multiple variable functions.

The construction of such equations, their validity, their value in correlation with the less precise descriptive method, and their limitations in the evaluation of aging are presented.

For example, on the basis of the general population mortality for 1948 in the United States the cardiovascular renal diseases and the cancerous diseases reduce the average length of life of white males by about 10 years and by 1.8 years respectively. Measurements are possible on similar lines to indicate the expected increase in years of life by removal of several diseases at different adult ages.

For example, single variable equations are

a) linear with change.
Basal metabolism in calories per square meter per hour=

$$M_C + r_{AC}\frac{\sqrt{\Sigma C^2-(\Sigma C)\ (M_A)}}{\sqrt{\Sigma A^2-(\Sigma A)\ (M_A)}}(A-M_A)$$

where r = coefficient of correlation and M = mean

or $\overline{C}$ (or calories per square meter per hour)= 39.138—0.0678 times A (or age in years)

b) linear with no change.
Diastolic blood pressure=77.2 plus 0.007 times A

c) curvilinear

$$\text{Systolic blood pressure}=\frac{1}{0.01215-0.0000728 \text{ times A}}$$

Urinary Stress Incontinence in the Female.

R. LICH, JR., *Department of Surgery, University of Louisville School of Medicine, Louisville, Kentucky.*

Urinary stress incontinence in the healthy female is a sequela of senility that is not commonly considered. Its evident frequency is coming more to be appreciated since we can offer these patients relief. The patients are presenting themselves because they have heard that relief is available and that it is not an insoluble affliction.

The problem of urinary stress incontinence in the female is re-evaluated in the light of specific roentgenologic and clinical observations. The mechanism of urinary continence in the female has been studied. This information is applied to the problem of urinary stress incontinence.

A simplified diagnostic method of true stress incontinence is presented along with the pertinent cystographic findings. The surgical failures in the past are discussed and definite criteria are set forth which must be fulfilled if therapeutic disappointments are to be avoided. A representative group of patients are discussed along with an operative procedure aimed primarily at the fixation of the urethro-vesical junction.

Care of the Long Term Patient at the Voluntary General Hospital.*

D. LITTAUER, *Menorah Hospital, Kansas City, Missouri.*

Content and Methods of An Intensive Course in Preparation for Later Maturity.

M. H. LITTLE, *Committee on Human Development, University of Chicago, Chicago, Illinois.*

The three quarter course which will be reported consists of individual consultation, discussion, and study organized around a series of lectures and films. Topics included are health, nutrition, employment, financial planning, use of leisure time, participation in social and community life, spiritual life, and a philosophy for the middle and later years.

Consideration is given to physical and psychologic changes that occur normally in the course of years and how they affect individuals, the maintenance of maximum health, adjustments that must be made in the family as children mature and become independent, attitudes about employment and retirement, and planning for future financial needs in view of present inflationary trends.

Participants receive complete medical examination, including both psychiatric and physical factors, to enable them to assess their own health resources. Individual consultation is offered in all fields covered by the course. Vocational counselling, including a variety of aptitude tests and based on health findings, is offered those who want a different kind of work after retirement.

Classes are limited to 30 persons to insure full participation in group discussion. Lecturers are specialists in the fields they discuss and, when possible, have special interest in the problems of older people.

Architectural Aspects of Housing for the Aged.

I. S. LOEWENBERG, *111 West Monroe Street, Chicago 3, Illinois.*

There is a great need for adequate housing and living arrangements for the many older people in our population, but suitable housing facilities can only be determined by knowing the physical conditions and the social situation of the person we may serve. For the older people who are comparatively well, housing needs may be met through regular community housing facilities in which people of any age group might live.

According to information at hand, many of our aged require social service assistance as well as medical care. Because of this situation, it becomes evident that those admitted in our homes for the aged will increasingly be a highly selective group. Therefore, a home for the aged should meet the community's needs rather than be an isolated little island by itself.

A well planned home should admit these people:

(1) The sick aged person who does not need general hospital care and to whom we generally refer as a person whose illness is irreversible;

(2) The comparatively well aged person who is unable to adjust with his family, friends, in his own home or in a boarding home;

(3) The chronically ill aged individual who needs protective care and some help from a social and psychologic point of view.

The home might be a structure, or a group of structures, which would include those aged whether chronically ill or comparatively well who could benefit from the services offered by the home. A resident in the home may be transferred from one section to another within the home without the feeling of having been uprooted from time to time.

The building should be a fireproof construction and should so be arranged that all rooms have some sunshine during the day. If the home is a multiple story building, automatic hospital type elevators should be built. This paper will describe the architectural features of the various parts of the building.

Attitudes Towards Older Workers.

I. LORGE *and* J. TUCKMAN, *Teachers College, Columbia University, New York, New York.*

The purpose of this study is to investigate the attitudes of a sophisticated young adult group toward older workers as measured by their responses to a questionnaire of 51 statements consisting primarily of erroneous beliefs about older workers. The subjects were 147 graduate students (92 men and 55 women) 20 to 51 years of age, enrolled in a course on the psychology of the adult at Teachers College, Columbia University. Age and sex comparisons were made.

An analysis of the data shows sex but not age differences. Women tend to subscribe more to the mis-

conception about older workers than men. For the total group the percent of agreement with the individual statements in the questionnaire ranges from 0 per cent to 78 per cent, with a mean percentage of agreement of 27 per cent.

The study indicates that there is a considerable acceptance of the erroneous ideas about older workers. This is even more surprising when the educational level, previous training in psychology, and the interest of the group in the older adult as evidenced by enrollment in a course dealing with the aging process are taken into consideration. There is a need for more data to prove or disprove the prejudices and misconceptions about the skills, abilities, and personality characteristics of the older worker.

The Correlation of Electroencephalographic and Clinical Findings in Psychiatric Patients over 65.

R. A. LUCE, JR., *and* D. ROTHSCHILD, *Department of Mental Health, Worcester State Hospital, Worcester, Massachusetts.*

Encephalographic abnormalities were commonly found in elderly patients admitted to the Worcester State Hospital. A study of approximately 100 patients over 65 was undertaken in order to determine whether these changes showed any correlation with the clinical symptoms. Special attention was devoted to an evaluation of disturbances in such fields as orientation and state of consciousness, memory, comprehension, and other symptoms which might point to organic cerebral involvement. Consideration was also given to neurologic and cardiovascular changes.

With respect to diagnosis, the cases could be divided into four groups: Psychoses with cerebral arteriosclerosis, senile psychoses, psychoses with other organic or toxic disorders, and a miscellaneous group of functional psychiatric conditions. There was no relation between the age per se and the electrical activity of the brain. However, patients with evidence of diffuse mental impairment, particularly that noted in senile psychoses, tended to show generalized encephalographic abnormalities characterized by an alpha frequency of less than 8 per second and frequent high voltage slow waves. The observations suggest that there is a direct correlation between electroencephalographic abnormality and the degree of organic mental impairment in elderly patients.

M

Personal Problems in Mental Health.*

W. MALAMUD, *Department of Psychiatry and Neurology, Boston University School of Medicine, Boston, Massachusetts.*

Exploring the Housing Needs of the Aging.*

B. MARQUETTE, *Better Housing League, 312 West 9 Street, Cincinnati 2, Ohio.*

Arteriosclerotic and Hypertensive Retinopathy Treated with Vitamin E.

G. MARS, R. SEIDENARI, *and* M. MORPURGO, *Divisione Medica Rizzi and Divisione Oculistica Quaglino, Ospedale Maggiore Di Milano, Milan, Italy.*

Twenty aged patients with arteriosclerotic and hypertensive retinal changes were treated with high doses of Vitamin E for a period not less than a month.

In 17 cases a relief of ocular symptoms and signs as well as of some general subjective troubles was noted. Ophthalmoscopically the most striking and important result was the reduction or disappearance of the artero-venous crossing sign and of retinal edema, both lesions being considered as severe and irreversible.

Discussion follows about the various mechanisms of the drug's action. Starting from the assumption that most vascular lesions in elderly patients are to be related to a diffuse mesenchymal change, the authors conclude that the best founded hypothesis is the one based on the anticollagen activity of the drug.

Nuclear Pentosenucleoprotein as the Basic Controlling Agent of Cellular Metabolism and Proliferation.

A. MARSHAK, *Division of Chronic Disease and Tuberculosis, New York University College of Medicine, Bellevue Medical Center, New York, New York.*

Since the one common characteristic of all malignant tumors is uncontrolled growth, the central problem in malignancy is that of understanding the mode of control of cell proliferation. Studies with radioactive tracers have shown the nuclear pentosenucleic acid (N-PNA) may act as the precursor of the desoxyribonucleic acid (DNA) of the nucleus and of the cytoplasmic pentosenucleic acid (C-PNA).

Before the cell can divide, the nucleus must synthesize new DNA for the daughter nucleus. As the precursor of DNA, the N-PNA therefore has a controlling influence. As precursor of the C-PNA it can also control synthetic activity of the cytoplasm.

Chemical analyses have shown that the N-PNA's as a group have a different purine and pyrimidine composition and hence a different structure from the C-PNA's. The difference in composition is such that in the conversion of N-PNA to C-PNA about half of the adenylic acid must be released. This indicates the source of the cytoplasmic adenine nucleotides such as ATP which play a key role in the intermediate metabolism of the cell. Thus both the energy producing systems and the synthetic activity of the cell are under the control of the N-PNA.

Cellular differentiation in embryologic development has been assumed to be due entirely to the segregation of cytoplasmic constituents of the ovum. Chemical analyses have shown marked differences in the pyrimidine composition of the N-PNA of different tissues of the same animal. Hence, cell differentiation must involve fundamental nuclear changes as well as cytoplasmic alterations. To the extent that dedifferentiation enters into the problem of malignancy the modification of the N-PNA must also be involved.

The Apparent Relation of Certain Neoplasms in Domestic Animals to Senescence.

H. M. MARTIN, *University of Pennsylvania, Philadelphia, Pennsylvania.*

Neoplasms, in domestic animals as in the human, may develop at any age. Again as in the human, tumors are more frequently noted in the older age group. Certain neoplasms appear to manifest themselves almost, if not entirely, in the aged and suggest a relationship to senescence.

Weed (1920), in studying the arachnoid cell nests in the meninges of cats, describes their gradation as noted in advancing age from slight areas of thickening to actual tumefaction, which he interpreted as a phenomenon of senescence.

In our own laboratory we have noted similar reactions in the meninges of older cats. The average age of these animals was 12.4 years. All affected were 10 years or older.

Primary adenocarcinomas of the thyroid gland in dogs have also been noted in older animals. Eight such cases have been observed with an average age of 12.5 years, the youngest being 10 years of age. Other neoplasms to be discussed include those of the adrenal, prostate, and merocrine circumflex anal glands.

Histologic Results of Endocrine Replacement in the Aged Female: A Preliminary Report.

W. H. MASTERS, *Department of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Missouri.*

Long range endocrine replacement in the aged female has provided empirical evidence of pelvic tissue regeneration. Autopsy returns now are available to demonstrate the histologic changes apparent in the target organs. The most interesting regenerative effects are noted in the media of the pelvic vessels. A definite medial hyperplasia is demonstrable. There is also a suggestion of recanalization of many previously thrombosed and sclerotic uterine vessels.

Patterns of Local Action for the Welfare of Older People in American Communities in Relation to Employment.

G. MATHIASEN, *National Committee on the Aging, National Social Welfare Assembly, New York 19, New York.*

In a survey recently conducted by the Research Department of Community Chests and Councils in cooperation with the National Committee on the Aging, 164 communities reported committees organized to study the social welfare needs of older people and to devise ways of mobilizing the resources of the community to meet the needs. While each organization bears the individual mark of the locality, certain characteristics appear in common: 1) acceptance of a broad definition of social welfare as the general well being of all citizens in the community and 2) the unusually wide range of interest represented in the committee membership. Among the specific areas of concern to the committees are employment, health, housing, institutional care, personal counselling, and recreation. While recreation has been the first special service offered to older people in many places, consideration of employment needs and possibilities has been the active concern of 38 communities reporting in the survey and has probably been the area in which there has been most serious study and concerted community action.

Certain communities have made outstanding contributions in their approach to the problems of employment and retirement of older workers. The purpose of the paper would be to give a general background of local community organization on behalf of the aged and to discuss in some detail the specific work in relation to employment by such cities as Cleveland, Indianapolis, Los Angeles, Minneapolis, New York, Schenectady, and Syracuse.

Inter-Relationship of Public and Private Community Planning for the Aged.

H. McCarthy, *Commissioner of Welfare, City of New York, New York.*

The relationship between public welfare agencies and private welfare agencies in planning programs for the aged, including special reference to the experience in New York City, will be discussed.

Comparable Age Changes in the Dog, Rat and Hamster.

C. M. McCay, *School of Nutrition, Cornell University, Ithaca, New York.*

Among different species of animals there are some common changes that accompany aging and some characteristic, unique differences. No one has discovered any common change with aging between lower and higher vertebrates. In contrast all mammals that have been studied exhibit a regular deterioration in the skin, skeleton, and hair coating as age advances. Limited information indicates that the female of most species outlives the male. However, in the case of the hamster the reverse seems true.

While all higher vertebrates seem subject to tumors, lung disease, and deterioration of the kidneys, the relative importance of diseases in different organ systems varies greatly. In old age the greatest affliction of the white rat in both American and European laboratories is bronchiectasis. While the hamster in old age also seems to suffer from weakened lungs, the problem is much less acute than it is for the rat. The lungs of the dog seem much more resistant to disease than those of rodents. The rat also develops chronic middle ear disease in old age while the hamster does not. There is great need for the study of comparative pathology in order to discover the species of animals most related to man.

The Paradox of Poorly Fed Old People in a Rich Nation.

C. M. McCay, *School of Nutrition, Cornell University, Ithaca, New York.*

In the United States today is the paradox of millions of older people who cannot afford or who do not know how to purchase an adequate diet. In Central New York the relief allowance for food is about 16c per meal or less than 50c per day. This allowance is less than the equivalent of a half hour of unskilled labor. Inflation has also pinched severely the food budgets of many who are not on relief.

Part of the solution of these basic problems concerns the underlying causes of poverty. These are social-economic concerns outside the area of nutrition.

Nutrition can render definite assistance in helping maintain the health of the aged. In the first place specialists in foods need to serve as highly trained critics of the activities of both government and industry to prevent fraud and exploitation in foods essential for the aged. Such primary foods as baked goods and bread are especially important. Experience in this field within the United States will be cited as an example.

In the second place nutrition research needs to be directed toward the definition of the needs of the aged who take little exercise, are often disturbed emotionally, and consume monotonous diets at low levels. The third function of nutrition is to assist in the development of foods such as those rich in milk solids which are of special value for the aged. Finally a special educational program is important.

The Adjustment of Retired Workers in Industrial Communities.

J. W. McConnell, *Industrial and Labor Relations, Cornell University, Ithaca, New York.*

Retirement from employment, whether voluntary or compulsory, is a major personal adjustment, and retirement itself is a social phenomenon that calls for careful examination. Thus far little is known about attitudes of employees toward retirement, nor the specific details of the personal and social adjustment that takes place. This paper will attempt to summarize some recent data dealing with reasons for retirement, sources of income for retired employees, living arrangements, post-retirement activities, and employee reactions to various methods by which retirement is accomplished.

Loss of production as well as psychologic shock result from the forced retirement of employees physically able to work. How many are able to work? Why do they want to work? These are additional questions which will be explored in the light of recent data.

The facts about retirement are few; too few, in fact to lead to detailed proposals for the improvement of retirement planning. Nevertheless, a few constructive suggestions can be offered as a consequence of preliminary findings in the studies now under way.

An Analysis of 400 Pending Admissions to Lambert Lodge, a Home for the Aged, Operated by the City of Toronto.

L. B. McFadgen, *Lambert Lodge, Toronto 4, Ontario, Canada.*

Four hundred pending admissions were analyzed with a view to determining: (a) the reasons for ap-

plication to a large home for the aged; (b) the solutions arrived at by those applicants whose admissions could not be arranged due to lack of accommodation within the home; (c) the type of care most urgently needed by those older people applying for admission to this institution; and (d) an estimation of the amount and type of accommodation required to answer the housing needs of the older citizens of Toronto and of the proposed Metropolitan area.

Applications are compared with a similar number of admissions—chosen at random from among one thousand admissions—in an attempt to determine if the housing needs of the aged are becoming more acute.

The Trend of Endocrine Gland Changes in Aging Individuals.

T. H. McGAVACK, *New York Medical College, Metropolitan Hospital Research Unit, Welfare Island, New York, New York.*

Data are presented showing the variations in urinary gonadatropins, 17 ketosteroids. and 11 oxycorticoids in 76 normally aging persons (41 men and 35 women) between the ages of 31 and 85 years and 158 patients (45 men and 113 women) between the ages of 47 and 81, suffering from one of the following conditions: the climacterium, hypertension, arthritis, diabetes mellitus, Achard-Thiers syndrome (?) and senile osteoporosis. These data are taken as a point of departure for discussing current hypotheses regarding the shift of steroid hormone production and activity from the gonads to the adrenal during aging and how such alterations may influence or be influenced by the development of diseases commonly seen in or beyond late middle life. In this connection, the work of other investigators relative to aging is reviewed with particular emphasis upon (a) reported values for various hormones in the urine and (b) histo-chemical changes which occur in the pituitary, gonads, adrenals and thyroid.

Retirement and the Rural Community.

W. C. McKAIN, JR., *Department of Sociology, The University of Connecticut, Storrs, Connecticut.*

During the last few decades retirement has become an accepted mode of behavior in most parts of the United States. There has been a noticeable lag, however, in rural areas. The value of work as an end in itself has persisted among rural people and many times they are reluctant to withdraw voluntarily from the labor force as they grow older. Moreover, most rural people are engaged in occupations that permit a reduction of activity without actual retirement. In addition, private pension plans and advances in social security have not given the same emphasis to retirement in rural communities as they have in cities since a large part of the rural working force is not in covered employment.

Nevertheless an examination of the 1950 age pyramids for rural areas suggests that both the number and proportion of older persons are increasing and other studies indicate that there has been a substantial increase in the number of retired persons living in rural areas. Part of this increase can be traced to the in-migration of retired persons who have chosen to spend their years of later maturity in a rural environment.

A number of problems are raised by this in-migration including the rejection of newcomers by the rural community and disillusionment on the part of the in-migrants. The roles and statuses of retired persons are seriously disturbed by the retirement process and they are further upset when the retired persons move to another community. Moreover, the stereotyped conception of life in the country sometimes prolongs the period of adjustment.

The emergence of retirement as a social institution and the migration of retired persons to rural communities have also affected the communities themselves. Human resources have been made available in rural areas where they are badly needed. Retired persons often bring a wide range of skills and experiences to rural communities and they have time to work on community projects. They may also bring problems and their assimilation into the communities is a definite challenge.

Diseases of the Aged. An Analytic Study of Pathologic Findings in 1251 Autopsy Protocols in the Aged.

L. S. MEDALIA, *and* P. D. WHITE, *78 Bay State Road, Boston, Massachusetts.*

The duration of human life has steadily and rapidly increased during the past two generations; and while we have a justified satisfaction in the control and prevention of the infectious diseases, we have made little progress in combating the chronic so-called degenerative diseases mostly involving cardiovascular-renal diseases and the neoplastic diseases. With the increased duration of life, a heavy responsibility is placed upon us to study and to lessen, so far as we are able, the progress and effects of these chronic diseases.

In order to make a start in this worth while, indeed essential, effort, we believed that we must establish a base-line of knowledge of the incidence of diseases in the aged, adequate information about which is still very scanty today. To obtain such a base-line, we

have analyzed 1251 consecutive autopsy protocols of individuals from 50 to 90 years of age in two general hospitals in Boston, the Boston City Hospital and the Massachusetts General Hospital, paying particular attention to the cause or causes of death and coincidental pathologic conditions in the aged. We studied the way these lesions vary from decade to decade and how they differ between male and female. We have paid especial attention to the heart and cardiovascular-renal system, noting also blood pressure findings and clinical diagnoses. These findings will be described in detail.

Psychiatric and Psychologic Factors in Accident Susceptibility in the Aged.

H. MELTZER, *Psychological Service Center, St. Louis 8, Missouri.*

The oldest as well as the youngest spend more time at home, on the average, than people of other ages. In considering safety in living for the elderly, the home is thus the important setting to consider. Accordingly, in this paper accident susceptibility in the aged will be considered in the home setting. Emphasis will be on psychiatric and psychologic factors considered in terms of intellectual and emotional factors which contribute towards accident susceptibility.

Problems of perceptual and motor responses as well as self-valuation and feelings about the roles of others are involved in the attitudes manifested by the aged in homes. These are considered in more specific details such as attitudes found among the aged ranging from overdependence to pseudo-independence, and including the effects of fears, anxieties, occurrences of amnesia, and irritability. Also considered will be ways of developing healthy minded attitudes which can be maintained by the aged and can be used to advantage in reducing or eliminating their accident susceptibility in the homes.

Hospital and Institutional Care for the Geriatric Patient.

A. P. MERRILL, *St. Barnabas Hospital, New York, New York.*

This paper will analyze the present-day role as well as recent trends and developments in hospital and institutional care for the geriatric patient. Existing facilities will be reviewed in the light of the overall need and the manner in which the general and special hospital can fill this gap in health services. An analytic approach and explanation will be made of the overall deficit of 300,000 hospital and related-type beds.

Comments will be made concerning the 11,000 new hospital beds designed for the chronic patient, as well as the role of related-type institutions, including nursing homes and homes for the aged, with particular reference to a recent survey of 42 institutions in New York City undertaken by the Welfare Council.

The three categories of chronic sick — the short-term, the long-term, and those with extreme handicaps and severe impairments will also be considered. The existing and desirable role of the general and special hospitals, including other methods of care, for these types of patients will be pointed out.

The essentials of modern design and physical layout to meet the peculiar needs of the geriatric patient will be reviewed, as well as other required services, including medical, personnel, and economic considerations. Factors affecting cost of operation, as well as construction, will be included. Integrated plans and diverse patterns of approach for comprehensive medical care will be outlined. How new types of programs, such as home care, as well as prevention, research, and educational efforts will affect the need for hospital and other type beds for the geriatric patient, will be discussed.

The problem of how society can best cope with this Number One health problem by adequate hospital and institutional programs will receive the chief emphasis in this presentation.

Recent Trends in Old Age Security Plans.

R. A. METALL, *International Organizations Division, International Labor Organization, North Hills, Long Island, New York.*

Post-war trends in old age security plans reflect changes in the relative emphasis placed on the various factors that have for the past half century determined and continue to determine the character of particular plans. No startling innovations have been recorded.

The principal factors in old age security plans are the reward for long service and the protection against senile invalidity. The subsidiary factors are the employment market, the value of money, and the age distribution of the population.

There are two main types of pension plans: the occupational or establishment plan and the national or general plan. In the first type of plan, the predominant factor is long service; pensions correspond to individual equity and the pensioner must retire from his occupation or establishment. The second type of plan is designed to prevent destitution in old age and all other considerations are of secondary importance.

The patterns which have emerged since the war show the influence of monetary depreciation and concern for social adequacy and individual equality. The aging of the population and the adoption of policies of full employment have also had a significant influence on pension plans.

The effect of inflation has been to minimize the individual equity factors in the pre-war national plans in Western Europe. With the disappearance of reserves, pre-war pensions became worthless and the State has had to secure, if it could, a socially adequate (i.e., in practice, a subsistence) pension for all. Against actuarial traditions, the State is being forced to guarantee subsistence pensions at least against monetary depreciation. All governments are now in favor of this principle but few have worked out the means of applying it (Brazil, France, Denmark, Sweden).

There is a tendency in Western Europe to raise the pre-war retirement age in order to compensate the disequilibrium resulting from the aging of the population. Pensioners still become eligible for benefits when they reach the pre-war retirement age, but if they continue to work beyond the retirement age the pensions are higher or cease to be subject to a means test. In Sweden and Iceland where the life expectancy is very high, the retirement age is up to 67. In such countries, better health preservation allows working up to a higher age.

The policy in regard to retirement age is curiously contradictory. Before the war, the only national plans which made retirement compulsory as a condition for receipt of benefits were those of the United States and Czechoslovakia, yet the unemployment of the 1930's would have justified a wider application of compulsory retirement. Instead, there was a popular demand for lowering the retirement age. At the present time, while full employment policies are widely adopted, more countries—France, Belgium, United Kingdom — impose retirement at a specified age presumably to avoid immediate heavy cash disbursement.

The proposed International Labor Convention on Social Security allows of a higher pensionable age in countries where the proportion of aged in the total population is increasing.

Except in Latin America, occupational pension schemes are no longer created by law on a compulsory basis. Such schemes tend to become the private concern of the industry and are established without State subsidy or guaranty.

Periarthrosis Humeroscapularis. Course and Prognosis of Seventy-Eight Cases.

E. MEULENGRACHT *and* M. SCHWARTZ, *Bispebjerg Hospital, Copenhagen, Denmark.*

Seventy-eight patients with periarthrosis humeroscapularis (stiff painful shoulder) were followed for an average period of three years and two months. The disease was only found in patients over 40 years of age, most cases beginning between the age of 50 and 70 years.

The course of the disease is rather long, with a duration of usually one-half to one year, but the ultimate prognosis is considered as good. Sixty of our patients were found cured by the follow-up examination — obviously without any relation to the treatment instituted; 7 died before the follow-up and 11 are still not cured, but in only 5 of these has the disease lasted for more than two years.

In 14 cases (18 per cent) the stiff painful shoulder was combined with Dupuytren's contracture and in 21 patients (27 per cent) with disease of the thyroid gland.

A special form of the disease with high sedimentation rate, anemia, slight fever of long duration, and loss of weight was found in 18 cases.

The Prevention of Cancer in Old Age.

I. MILLAN, *Tumor Clinic, General Hospital, Mexico City, D. F., México.*

It has now become an established fact that cancer is a disease allied to the process of aging. It is also a fact that statistics for cancer mortality show that the highest death rate for cancer falls upon elderly people. Outside of the periodic medical examinations usually recommended for cancer, which is equally as effective for the prevention of any other disease, nothing really specific has been done towards devising some scientific procedure for the specific study of cancer in the aged, a subject too often neglected medically because of an unfortunate pessimism as to what can be accomplished. As a matter of fact, cancer in older people has certain characteristics, such as a slower rate of malignancy, which makes it easier to control and prevent, in many cases, than the more rapid and destructive types of cancer in the young.

Therefore, it is suggested that the new science of gerontology give this problem special attention. The scientific requirements for a definite approach to the prevention of cancer in elderly people are discussed.

Age Changes in the Maximal Rate of Renal Tubular Reabsorption of Glucose.

J. H. MILLER, R. K. McDONALD, *and* N. W. SHOCK, *Section on Gerontology, National Heart Institute, National Institutes of Health, P.H.S., F.S.A., Bethesda, Maryland, and the Baltimore City Hospitals, Baltimore, Maryland.*

The maximal rate of renal tubular reabsorption of glucose (TmG) was measured in 76 male subjects who ranged in age from 24 to 86 years. All subjects selected for the present study were adjudged to be free of cardiovascular and renal disease.

TmG showed a progressive decrease with age from a mean of 358.7 mg./min. in the third decade to a mean of 219.2 mg./min. in the ninth decade. The relationship between TmG and age did not differ significantly from rectilinearity ($r = 0.61$).

The glomerular filtration rate as measured by the clearance of inulin during periods of elevated glucose plasma levels similarly showed a progressive decrease with age from a mean of 146.0 cc./min. in the third decade to a mean of 81.0 cc./min. in the ninth decade. The relationship between filtration rate and age did not differ significantly from rectilinearity ($r = -0.71$).

The ratio of glomerular filtration rate to maximal tubular reabsorption of glucose did not change significantly with age.

Lecithin in Experimental Atherosclerosis in the Rabbit.

G. MININNI, P. CAPPELLI, *and* C. CHECCHIA, *Medical Clinic, University of Florence, Florence, Italy.*

According to recent conjecture atherosclerosis is produced by the deposition of cholesterol in the intima of the arteries, the deposition being caused by a disproportion between cholesterol and some stabilizing agents such as the phospholipids and the albumins in the blood. Patients with developing or established atherosclerosis present a subnormal ratio of phospholipid/cholesterol in the blood and also pathologic lipoprotein molecules.

Experiments performed in human individuals and in animals on the effect of phospholipids in spontaneous and experimental artherosclerosis did not give conclusive results. In the present communication the effect of soja lecithin in experimental cholesterol atherosclerosis in rabbits will be reported. In the rabbits receiving a normal diet no change in the blood cholesterol level or in the arterial intima was observed following lecithin administration. In a group of animals receiving both cholesterol and lecithin the cholesterol concentration of the blood was about the same as in the rabbits treated with cholesterol only. In this latter lecithin treated group, however, the deposition of lipids in the intima was about two to three times greater than in the animals treated only with cholesterol.

Tibial Hypertension and Plethoric Conditions.

R. MONFARDINI, *and* S. BARDELLI, *Medical Clinic, University of Florence, Florence, Italy.*

A comparison was made of blood pressure readings performed over the brachial and the tibial arteries in a large number of subjects who were free from cardiovascular disease. In some of the individuals studied the blood pressure readings over the tibial artery were found to be from 40 to 100 mm. Hg. higher than over the brachial artery.

This finding was associated with complaints of headache, moderate precordial pain, and tendency to vertigo. Laboratory analyses revealed an increased blood volume, a slight increase in blood cholesterol and prothrombin, and occasionally also an elevation of uric acid and glucose concentrations.

Most of the subjects were over 45 years of age.

Endocranial Exostoses.

S. MOORE, *Division of Radiology, Washington University School of Medicine, St. Louis, Missouri.*

This term is the one used in the pre-roentgen period by pathologists and psychiatrists. It is probably better known than those of later date. The first description was that of Morgagni, mentioned first in 1719 and elaborated on in 1761. Apparently Morgagni considered the condition a syndrome. Recent names applied are, in chronologic order, L'hyperostose Frontale Interne (Morel), Stewart-Morel Syndrome (Van Bogaerte), Hyperostosis Frontalis Interna (Moore), Metabolic Craniopathy (Moore), Morgagni's Syndrome (Henschen). There is fairly general agreement that there is a symptom complex accompanying idiopathic symmetrical hyperostosis of the skull, certainly of Hyperostosis Frontalis Interna. The writer has described three additional types, Hyperostosis Calvarial Diffusa, Nebula Frontalis, Hyperostosis Fronto-Parietalis and a combination of two or more of the preceding.

The material investigated consists of a review of the roentgenograms of the skull of 10,064 patients in

a general hospital group, an analysis of the hospital records of those having hyperostosis, and an identical analysis of a control group. The incidence varies with the institution, the general population, sex (98 to 100 women to 1 man), and age. It is far more frequent among the insane. It was found by x-ray in 14 per cent of healthy young women. The impressive symptoms are obesity, the demonstration of the skull change, male type of hirsutism, and subjectively, headache. Other symptoms are less striking.

The diagnosis is based on both clinical and radiographic findings; many cases appear never to have had any symptoms. The prognosis of the condition is serious. Treatment is directed towards alleviation of the symptoms.

The etiology of the disease is unknown; a proposed theory will be advanced. The condition is not a feature of modern civilization, as will be explained on the basis of paleopathologic observations.

Anesthesia for the Aged Patient.

E. T. MORCH *and* P. H. LORHAN, *Department of Anaesthesiology, University of Kansas Medical Center, Kansas City 3, Kansas.*

Most elderly persons exhibit some degree of impaired function of different systems, mostly circulatory and respiratory. The preoperative examination plays the important rôle of informing us about these defects so we may take precautions and make our choice of anesthesia accordingly, disturb the patient's habits the least and administer the preferable premedication.

It takes quite some adaptability and skill for the anesthetist to select the optimal anesthetic. The safest anesthesia may be a spinal, or a general one, but will often be a combination of techniques, e.g., local analgesia supplemented by a general anesthesia.

During the postoperative period the patient should be mobilized early, supportive measures taken, and even minimal complications should be diagnosed early and counteracted vigorously.

The encouraging result of modern efforts is an abrupt decline of the mortality in geriatric surgery.

The Place of the Church.

MOTHER M. BERNADETTE DE LOURDES, *Saint Patrick's Home, 66 Van Courtlandt Park, South, Bronx 63, New York, New York.*

Programs for the aged under Catholic auspices are developed in accordance with the philosophy that old people require the same understanding, recognition, and affection as other members of the family group. Provided that the family can care for its aged, every encouragement and help is given so that they may achieve this objective.

In the United States, since 1842, religious communities have in the face of great obstacles and by virtue of numerous sacrifices established many institutions which have given outstanding spiritual, medical, and other essential services to needy aged individuals. In the early days the majority of programs for the aged took place within the institutional setting. Today the Catholic institutions for old persons is gradually becoming a real part of the community in which it is located. There is a two-way movement—the institution is moving out into the community and on the other hand the community is moving in through well-developed volunteer programs.

Considerable emphasis is being placed upon stimulating youth in colleges, parochial schools, and in the parish church to provide personal services to the aged in their own homes and in the institution. Members of religious communities are expanding nursing services in many localities so that they may care for the chronically ill aged in their own homes.

Studies are under way in parishes to determine the exact needs of the aged with the hope that eventually programs can be set up with the help of the old people themselves. All services are being mobilized to assist old people to maintain their independence, to continue old relationships with families and relatives, and to feel their importance as members of the local parish and community.

Health Services for the Aging in Saskatchewan.*

F. D. MOTT, L. S. ROSENFELD, *and* M. TAYLOR, *Health Department of Saskatchewan, Saskatchewan, Saskatoon, Canada, and Division of Public Health Service, Washington, D.C.*

The Electromyogram in Rheumatoid Arthritis.

E. E. MUELLER, *and* S. MEAD, *Division of Physical Medicine, Washington University School of Medicine, St. Louis, Missouri.*

In 24 patients with indisputable rheumatoid arthritis electromyograms (recorded near the most painful and actively diseased joints) showed the following major characteristics:

All patients showed electrical quiescence at rest,

when properly relaxed and positioned. (One elderly woman had a senile type parkinsonian tremor.)

One patient had a recurrent tremor of the thigh muscles which was involuntary but could be inhibited by positioning. A few others showed tremorous activity on active motion.

Fibrillation was not observed, although it was seen once in a previous study.

Low voltages and disorganization of the basic interference pattern were common and suggested muscle weakness.

Although we have very few cases with electromyograms taken before and during ACTH or Cortisone treatment, we noted no striking differences in treated patients.

Assessment of Physiologic Age by a Combination of Several Criteria: Vision, Hearing, Blood Pressure, and Muscle Force.

I. M. MURRAY, *Department of Anatomy, Dalhousie University, Halifax, Nova Scotia, Canada, and State University Medical Center, New York, New York.*

The usual methods of expressing age in terms of physiologic function do not enable one to combine the various functions to give a single index of physiologic age. A method is presented for assessing physiologic age in an individual based on the examination of five physiologic functions in a sample of 38 business and professional men between the ages of 21 and 84 years. The functions tested were (1) range of visual accommodation, (2) sensitivity of the dark-adapted eye, (3) auditory acuity, (4) systolic blood pressure, and (5) strength of hand grip. Using multiple regression techniques, age is expressed in terms of a combination of these five physiologic functions and the squares of the functions. The distribution of the deviations between the estimated physiologic ages and the chronologic ages of the 38 men indicates that the equation is equally applicable at all the age periods studied. This method can be extended to incorporate an unlimited number of physiologic, anatomic, and psychologic criteria for an assessment of biologic age. In setting up standards for the assessment of aging, random samples taken from policyholders of large life insurance companies may be more representative of the general population than any other specific group.

Tuberculosis Among the Aged.

J. A. MYERS, *School of Public Health, University of Minnesota, The Medical School, Minneapolis 14, Minnesota.*

In many parts of the world tuberculosis is now referred to as a disease of old people, particularly men. This apparently is because the aged of today had almost no protection against tubercle bacilli in infancy, childhood, and young adult life. Many of them developed primary tuberculosis, and residual lesions are resulting in endogenous reinfections in old age.

Children and young adults of today have been protected against infection so long that relatively few now fall ill or die. Therefore, the high incidence of the disease among older individuals stands out in bold relief.

N

Workman's Compensation as an Aspect of Rehabilitation.*

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Management of the Decompensated Bladder in the Aged.

R. M. NESBIT *and* W. C. BAUM, *Department of Surgery, University of Michigan School of Medicine, Ann Arbor, Michigan.*

The surgical risk inherent in the elderly patient afflicted with prostatism has long been recognized, and has found expression on the part of the patient in an understandable reluctance to consider definitive surgery unless forced by circumstances beyond his control, and on the part of the surgeon in the performance of prostatectomy in such a fashion that the first stage would employ a preliminary period of cystotomy drainage. An operative mortality of 25 per cent or more only a few decades ago made such considerations reasonable.

The modern era of prostatic surgery has, to a large extent, freed itself from patient reluctance by reason of a spectacular reduction in this mortality rate, and the surgeon has come to enjoy through improved technique and an increased knowledge of the pathologic physiology of the disease process, a high degree of success by whatever route he may choose to approach the prostate gland.

Despite this trend there still remains a group of

patients whose response to prostatectomy is characterized by both excessive mortality and morbidity, a group who shares the common features of obstructive uropathy of long standing; namely, decompensation of vesical musculature and reduced renal tubular function. If the surgeon be so bold as to ignore their presence he may expect his survival statistics to revert to those of less enlightened days, and the urinary function of those remaining to be unsatisfactory despite adequate operative removal of the gland.

There is yet no substitute for preliminary cystotomy drainage in uremic patients, and no better way to manage vesical decompensation. Just as important, however, is an understanding of the proper management once drainage is instituted, for upon this knowledge rests the future prospects for normal urinary function of the individual.

The cystometric examination has proven an invaluable guide to the recognition of the state of the vesical detrusor tone, and together with studies of renal function provides the clue as to the necessity of permanent cystotomy drainage, a later successful second stage prostatectomy or prostatectomy followed by partial cystectomy. Illustrated cases are demonstrated.

Geriatric Nursing.

K. NEWTON, *Out Patient Nursing Service Instruction, 445 East 65 Street, New York 21, New York.*

A description will be presented of a more or less ideal comprehensive geriatric unit and how the nurse may function in its creation, in its continued development, and benefit from the learning opportunities it will offer. Some newer concepts as they affect professional nursing will be discussed, such as the need for regional planning, the team approach, and consideration of the patient as the center of the therapeutic team. Attempt will be made to describe how the nurse can assist in seeing that sound scientific research and consideration of individual patient's aspirations may exist in harmony and how she may assume leadership in furthering better understanding of the aged by all who work and live with them.

Finally, the point will be made that only through community effort with wide representation from many fields of endeavor can a comprehensive geriatric unit really contribute to human welfare.

O

The Electroencephalogram of Normal Male Subjects Over Age 75.

W. D. OBRIST, *Moosehaven Research Laboratory, Orange Park, Florida.*

Electroencephalographic findings will be presented on 60 male subjects between 75 and 95 years of age. All were of reasonably sound physical and mental health. The test consisted of routine monopolar and bipolar recordings taken from the major areas of the cortex over each hemisphere. This was followed by a three minute period of hyperventilation.

The results tend to confirm previous observations that a much higher proportion of slow electroencephalograms is found in the aged than in younger subjects. The mean alpha frequency is lower and there is a greater incidence of delta wave activity, usually of moderate or high voltage. Although such slowing is for the most part generalized, a number of cases of focal slow wave activity were found. The incidence of waves faster than 12 per second is also greater in this age group than in younger subjects. These slower and faster frequencies tend to interfere with the regularity of the alpha rhythm. Except in some cases showing considerable slow wave abnormality, hyperventilation produced only slight changes in the records. The possible relation of these findings to organic and psychologic deterioration in old age will be discussed.

Employment Problems of Older Workers in the United States.

C. E. ODELL, *Federal Security Agency, Washington, D. C.*

The Bureau of Employment Security, collaborating with several State Employment Services, conducted studies of older workers in 1950. The studies covered small, medium, and large size communities with labor market conditions ranging from relatively high unemployment to virtually full employment with regard to employment problems of the aging.

The studies contradicted the popular opinion that full, or at least expanding, employment provides the only solution, and a complete solution, to the employment problems of older people. While the absolute size of the problem diminishes under such conditions, it remains true that the older worker, as compared to other workers, faces greater difficulties in securing new employment. If the older worker does not quickly locate a new job, his unemploy-

ment tends to protract itself well beyond the average of younger workers. Unemployment of more than 20 weeks' duration was not unusual among the older workers of the study groups.

The studies provided conclusive evidence that workers over 45 in all occupational groups have fewer employment opportunities than their representation in these groups would warrant. In one local office the odds against placement of workers over 45 were on the average 6 to 1. In the clerical and sales occupations they were 4½ to 1, and even in the skilled trades they were more than 2 to 1. A similar pattern prevailed in all localities of the studies.

General lack of recognition that the process of aging varies among individuals, and even among the different faculties in a single individual, is one of the most severe problems connected with the employment of older workers. Many people believe that all older workers are deficient in physical stamina, and especially unable to maintain high production speed. This is a generalization without sound basis. Such generalizations lead to attitudes which pose other serious problems. Acceptance on the part of personnel workers, including employment service staff, of biases and stereotypes is a major problem in placement of older workers. Personnel workers tend to select and refer older workers only to certain types of jobs without consideration of the actual abilities and capacities of the individual worker as related to the specific job.

The majority of older workers need intensive counseling and placement services to assist them in securing and retaining employment. Advice as to changing occupations is one specific type of service which older workers often require. Large numbers of these workers, even those with prior work history of great stability, find it necessary to change their occupations upon becoming unemployed after age 45. Another type of problem requiring special service develops when it is necessary for the worker to learn what demands he can make in seeking employment. Many older workers have not had to look for employment since the early years of their working lives. They have no conception of current labor market conditions or of the wages, working conditions, and locations of employment at which they can most successfully seek job opportunities. Many older workers need assistance in applying effective techniques of job search. Some require help even in such elementary techniques as writing a good letter of application.

The Utilization of an Improved Diet by Selected Older Women.

M. A. Ohlson, L. Jackson, R. Marin, D. Dunsing, *and* W. D. Brewer, *Department of Foods and Nutrition, Michigan State College, East Lansing, Michigan.*

Eighteen women from 48 to 77 years of age have been studied in their own homes (Ohlson, Jackson, Boek, Cederquist, Brewer, and Brown, *Am. J. Pub. Health, 40:* 1101, 1950). The self-selected diet was weighed continuously for approximately one hundred days. Earlier studies indicated that older women have stable food habits under these conditions (Roberts, Kerr, and Ohlson, *J. Am. Dietet. A., 24:* 292, 1948). Complete collections of food samples and excreta were made for ten days during the first month and after adjustment to each dietary change. Following each balance period the amount of milk ingested was varied to obtain a range of calcium, nitrogen, and phosphorous intakes.

The retentions of nitrogen and phosphorous increased with intake although the variation in individual responses was wider than reported for younger women (McKay, Patton, Ohlson, Pittman, Leverton, Marsh, Stearns, and Cox, *J. Nutrition, 24:* 367, 1942). Calcium equilibrium was found in 2 of 7 individuals with intakes less than 0.65 gm. per day. Only 1 negative retention was found in 13 periods at intakes of more than 1.1 gm. per day. Intakes between 0.65 and 1.1 gm. calcium resulted in an equal distribution of positive and negative retentions due to individual differences in economy of utilization of the mineral. Thus the correlation of retention and intake of calcium was observed only at low and high intakes of the nutrient.

Electrocardiographic Changes in the Aged. I. Statistical Evaluation of P.Q.R.S. and T. Amplitude and Duration. II. Changes in Left Ventricular Hypertrophy in the Aged as Compared with the Published Normal Values for the Young.*

O. Olbrich, *Director of the Geriatric Unit in the General Hospital, Sunderland, England.*

Survey of the Clinical Uses of the Electroencephalogram During Aging.

J. L. O'LEARY, *and* R. L. LAM, *Department of Neuropsychiatry, Washington University School of Medicine, St. Louis, Missouri.*

There has been insufficient evidence to establish norms for brain activity in aging individuals. Those are necessary if the electroencephalograph is to become a reliable tool for evaluating the symptoms and signs of nervous disorder that become manifest in the aged group.

The variations in EEG tracings of a group of healthy aged persons are reported, and the data is used as a standard for considering pathologic forms of record which occur in senile dementia, cerebral arteriosclerosis, metabolic disorders which affect the nervous system, cerebral metastases, and primary cerebral tumors.

P

On the Ecologic Background of the Life Span.

P. PALMGREN, *Department of Zoology, University of Helsinki, Helsinki, Finland.*

Continued life is possible as long as the cellular organization can be reorganized through fertilization, endomixis, or even through mitosis. The factors limiting mitotic capacity in somatic tissues of multicellular organisms are largely unknown.

As a rule, longevity increases with body size, but only related species can be compared. In birds the Ratitae, the gulls, the raptorial birds, and the passerine birds, for example, form quite different series in this respect.

Rubner's law (standard metabolism of homoiothermic animals, multiplied by life span=constant) and the temperature sum rule (life span of poikilothermic animals multiplied by temperatures = constant) seem to imply a fatal wearing out of living substances through a certain amount of energy transformation. As the longevity of organisms remaining alive in an inert state at very low temperatures is limited, although no metabolic activity ought to take place, some other kinds of changes must be supposed to occur and to kill them. These may be of the same kind as the mutations, viz., intramolecular irreversible changes in vital components of protoplasm.

The mean longevity in natural conditions is far below the physiologic span of life in most animals. The technical superiority and increased public health has emancipated man from the rule of pyramid of numbers, typical for biota in natural equilibrium. This emancipation is mirrored in the population of man as compared with populations of other vertebrates.

Aging and death are generally considered as signs of biologic defects. The limitation of life span should, however, be considered as adaptive and affected by genes. The shorter the span of life, the greater is the number of mutations submitted to selection in time unit and the greater the genetic plasticity of the species. The long-lived animals (man, elephant, big tortoises, big raptorial birds) belong to the top of producer-consumer chains. Such species probably do not need the same adaptability as other species.

Endocrine Aspects of Senescence.

M. PANELLA-CASAS *and* J. MONTEYS-PORTA, *Servicio de Geriatría del Hospital Municipal de Nuestra Señora de la Esperanza, Barcelona, Spain.*

Comentamos el papel del sitema endocrino en el envejecimiento, considerándolo como simple regulador del mismo.

Se admite en la vejez un desequilibrio hormonal fisiológico o eugérico, en el cual predomina el trípode hipófiso-suprarrenal-gonadal.

Sugiérese la conveniencia de dilucidar en lo posible la auténtica crino-involución, de los fenómenos climatéricos.

Se estudia la hipófisis senil con sus modificaciones citológicas de predominio basófilo y las variaciones hormonales que le acompañan: hiperpituitarismo gonadotrófico y probable hipofunción corticotrófica y tirotrófica.

También se estudia la corteza suprarrenal senil y las posibles modificaciones en la secreción de sus hormonas esteroides: mineralo-corticoides, glucocorticoides y androcorticoides. Coméntase la hipotética función de la suplencia gonadal por el cortex en la vejez y los argumentos anatomo-histológicos, clínicos y hormonológicos que la sostienen.

Se concede la mayor importancia a las alteraciones en el balance y metabolismo proteico consecutivas a la involución endocrina.

Refiérense las dificultades que conlleva el estudio endocrino en la vejez aludiendo al escaso conocimiento actual del problema y las particularidades del mismo en cada sexo.

The Clinical Effect of Pituitary Adrenocorticotrophic Hormone in 3 Cases of Severe Chronic Interstitial Cystitis.

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Three patients with severe chronic interstitial cystitis were treated with ACTH, two of whom were initially selected for a pilot study in February, 1950. A total of 1160 mg. were given each patient in daily doses over a period of 14 days. The pain subsided in 5 to 10 days. The ulcer disappeared from the bladder and the measured bladder capacity reached maximal value of 3 to 5 fold increase in 12 days.

Control studies were performed after the disease had fully recurred following cessation of ACTH therapy. Normal saline was substituted for ACTH in the original 2 patients and in 1 additional patient. During this control period the pain did not subside, the ulcers remained unchanged, and the bladder capacity did not increase.

When ACTH was again administered it was found the pain subsided on the average after 7.2 days, the ulcer was no longer visible after 11.2 days, and the measured bladder capacity reached maximal value on the average of 17 days. Measured bladder capacity increased 2 to 5 fold when ACTH was administered.

The lesions recurred if ACTH were discontinued, or if sub-minimal maintenance doses were administered.

Serum Protein Pattern and Antibody Titer During Life Span.

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During the growth of birds there is an increase in the concentration of serum protein, particularly globulin, and maturity of the globulin fraction is manifested by the presence of many kinds of antibodies. Similarly, in human beings, the growth period is marked by a gradually increasing titer of antibody stimulated by the injection of antigen, as well as exposure to antigen of the environment.

It was of interest for us to note that the presence of malignancy was reflected, both in a precipitous fall in antibacterial antibody titer, and also in the alterations of the serum protein pattern. In our experiments with rapidly growing Rous sarcoma in chickens, a varying degree of hypo-proteinemia was observed; the albumin fraction was moderately reduced, and that part of the globulin which is precipitated by low concentration of ammonium sulphate (euglobulin) was found to be diminished in accord with the reported (Midder, et al, 1950) reduction of γ globulin in late stages of human cancer. This is of particular significance since this fraction is considered to be the site of antibacterial antibodies. In contrast, cases of not far advanced human cancer reveal a certain increase in the globulin fraction, despite the decline of immune bodies.

This brief discussion indicates that the serum protein pattern and level of antibody titer would be a useful tool in geriatrics and lead to a better understanding of resistance at different ages.

Vocational Adjustment and Retraining.*

G. PARKS, *Williamsport Technical Institute, Williamsport, Pennsylvania.*

On the Philosophic Aspects of Aging: Some of the Conditions of a Happy Maturity and Old Age.

J. PAULUS, *Department of Psychology, University of Liège, Liège, Belgium.*

The traditional theory of motivation (a few innate physiologic drives; learning of suitable means of satisfaction during childhood and youth) suggests a negative and pessimistic view of aging. Clinical experience, however (Fromm, Maslow), shows that men are led (and occasionally frustrated) not only by lower physiologic drives, but also, though less conspicuously, by higher needs for truth, beauty, values, love, self-expression and realisation, the gratification of which is necessary for the maturing of well-integrated, productive, altruistic, healthy, and happy personality.

These higher needs appear later in life and make themselves felt only after the more vital ones have been satisfied. Their gratification requires a longer period of maturation and trial and error, during which the individual progressively discovers his full potentialities, becomes himself in the true sense of the word, and substitutes for the irrational super-ego a more personal ego-ideal. This process culminates in later years and gives them a positive meaning and function.

This development can be hampered (and often is) in two opposite ways. At any age, the individual may cling to a period of life, either because he missed the satisfactions normal for that period and des-

perately strives for them when it is too late, or because he got an excessive amount of gratifications to which he remains fixated.

The problem of successful aging would thus seem only an aspect of the more general problem of self-realisation. The same considerations would enable one to tackle more optimistically than is usual the problem of death.

The Private Nursing Home of Yesterday, Today, and Tomorrow.*

A. M. PEARSON, *Minnesota Association of Nursing Homes, Minneapolis, Minnesota.*

Rehabilitation of Markedly Debilitated Aged and Aging Subjects.

R. M. PERLMAN, *Institute of Endocrinology and Gerontology, San Francisco, California.*

Brief case histories of 15 patients, selectively chosen for the severity and intensity of their respective complicated clinical pictures, will be presented to demonstrate the fact that radical, vigorous, therapeutic intervention can result in noteworthy rehabilitation of individuals afflicted with conditions and /or syndromes which, heretofore, would have been deemed practically hopeless from the recovery or salvage viewpoints.

Modern antibiotics (penicillin, chlormycetin) were employed in conjunction with hormones, vitamins, special diets, and therapy directed at the improvement of cardiac, hepatic, and renal functions, as well as the principal organic systems (nervous, muscular, skeletal, etc.). In certain instances, apparently moribund, relatively aged individuals were restored to harmoniously-adjusted physical and mental well-being in their customary environments, creating unexpected measures of happiness for patients and their beloved ones alike.

The author concludes that therapy, in most instances, must be polyphasic, combined, extensive, expensive — on a relative basis — and intensive if maximum benefits are to be derived.

A Study in Cholesterol and Carbohydrate Metabolism.

R. M. PERLMAN *and* S. J. WINSTON, *Institute of Endocrinology and Gerontology, San Francisco, California.*

Using Deuterium and C^{14}—labelled acetate, Bloch, Rittenberg, and others showed that acetic acid is a probable precursor of cholesterol. Too, acetic acid, through the intermediary of isotopes, has been implicated in the synthesis of glycogen. Hypothetically, variations in common source material(s) might produce corresponding differences in resultant end-products and, perhaps, some intimate relationship could be demonstrable between carbohydrate and cholesterol metabolism in humans.

For the purposes of probing possible links between said metabolites, this study was devised so that an average of 10 to 20 each of blood sugar and serum cholesterol level determinations, during one and two day periods of time, were made per individual in a group of 27 ambulatory, fasting, diabetic, and non-diabetic adult patients. Detailed results suggest validity of the above-mentioned hypothesis.

Disability and Population Trends.*

G. ST. J. PERROTT *and* M. GOLDSTEIN, *U. S. Public Health Service, Washington, D. C.*

On the Fibrogenesis in Connective Tissue Cultures Observed With Polarized Light.

H. H. PFEIFFER, *Laboratorium für Polar.—Mikroskopie, Bremen, Germany.*

The process by which the fibrils of cultures in vitro are formed and recruited into an orderly organization becomes fundamental not only in biology and tissue culture technique but in medicine as well. Recent researches in this field are useful, if not to solve all problems, at least to suggest lines along which they may profitably be approached experimentally. Polarization optics make it evident that leptones between connective tissue cells form a WIENER composite body of positive form (textural) and positive intrinsic birefringence. Directed tensions and pressures within the medium of the explants increase both the measured intensity of double refraction of the objects and the calculated orientation rate of the leptones, and both are involved, too, by the aging process of the connective tissue, and influenced by different methods of tanning and fixation. Changes in tension, during the growth of the cultures, yield to a complete submicroscopic reorganization, and this process is reversible. But such a transformation can also be forwarded by heating in steam or immersion in sodium hydroxyde solution and is so irreversible. The fibres stretched in steam or alkali, having evidently suffered hydrolytic rupture of certain linkages, are in a labile condition, and their behaviour depends on the conditions under which new linkages are permitted to establish themselves.

Urinary Steroid Excretion in Relation to Age.

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Studies of the urinary excretion of 17-ketosteroids, non-ketonic neutral steroids, androgens, estrogens, and corticosteroids have been made for approximately 300 male and 320 female healthy subjects varying in age from 20 to 99 years. The 17-ketosteroid determinations on the neutral ketonic fraction were obtained by both the Zimmerman and Pincus reactions. The non-ketonic neutral steroid was estimated with the Pincus reaction. Androgenic activity was assayed by inunction of day-old chick combs. After the phenolic steroid extracts were separated into estradiol, estrone, and estriol fractions, estrogenic activity for each of these fractions was assayed by a modified Allen-Doisy procedure. Corticosteroids were determined as neutral reducing lipid. It was found that in both sexes 17-ketosteroid output declines with increasing age. In males non-ketonic neutral steroid shows relatively less decline while estrogen output is maintained and androgen output markedly decreased. Female subjects display a significant decline in estrogen and non-ketonic steroid output with increasing age. Both sexes appear to maintain neutral reducing lipid output.

The Effect of Diet and Therapeutic Agents on Serum Lipid Tolerance in Relationship to Atherosclerosis.

J. POMERANZE, *Department of Medicine, New York Medical College, New York, New York.*

An attempt is made to evaluate the effect of diet, dietary and insulin control in diabetes, and various therapeutic agents on serum lipid fractions in relation to atherosclerosis. Serial lipid fractions, liver function determinations, and lipid fraction tolerance studies were observed in groups of atherosclerotic, diabetic, and normal individuals.

Lowered serum phospholipid values in relation to cholesterol have been observed as a cause for turbid sera and atherosclerosis. In this study it was observed that phospholipid values rapidly change if serum is allowed to stand. Serum must be studied during the first few days to obtain true values. Turbid sera were observed with high phospholipid value. Fatty acids are evidently more important in determining the turbidity of the serum than serum phospholipids.

Little has been said of the effect of elevated serum fatty acids on the loss of serum colloidal stability and the effect of this on atherosclerotic plaques. Lipid tolerance studies emphasize the importance of these little considered elements.

Elimination of dietary fat lowers serum cholesterol to individual levels, which is apparently the level of endogenous cholesterol formation. This varies considerably in individuals and metabolic disorders.

In acute fat tolerance studies, cholesterol is little changed by the fatty meal. Phospholipids rise significantly, but the greatest elevation is in the fatty acids and total lipids. Following the fatty meal sera became turbid, although the phospholipid is elevated in relationship to the cholesterol.

Gastric Surgery in the Aged.

W. H. POTTER, M. N. ANDERSEN, *and* J. D. STEWART, *The Surgical Service of the E. J. Meyer Memorial Hospital, Buffalo, New York, and the Department of Surgery of the University of Buffalo School of Medicine, Buffalo, New York.*

In 203 consecutive elective subtotal gastrectomies for benign peptic ulcer over 60 per cent were in patients over 50 years old, and a high percentage had severe coexistent disease. These cases are analyzed to determine the comparative surgical risk in different types of patients, particularly the aged with incidental diseases ordinarily thought to increase operative risk. The data presented indicate that the elderly, debilitated individual can be operated upon without a significant increase in operative mortality or postoperative morbidity.

It is believed that these results are obtained by attention to maintenance of the patient's physical activity and physiologic equilibrium throughout the preoperative, operative, and postoperative phases of his therapeutic regimen. This activity and equilibrium is maintained by an energetic program to preserve the patient's accustomed daily routine, give him an active, constructive role in the hospital community, maintain his body fluids, electrolytes, and

oxygenation at all times, and to keep him moving, coughing, and doing while awake to avoid hypostasis and debility from disuse atrophy. In the care of the aged these rather than complex nutritional measures are emphasized.

Potentialities and Problems of Older Workers.

S. L. PRESSEY, J. STANTON, *and* M. W. SMITH, *Department of Psychology, The Ohio State University, Columbus, Ohio.*

The growing numbers of older individuals and present labor shortages make it especially timely now to investigate the potentialities of older workers. For this purpose, records were gone over of employees of a large department store, two manufacturing concerns, and a print shop in a mid-western urban area, also sundry case reports and other related material, involving in all some 10,000 persons.

Two firms were found keeping workers past 65 and even past 70. One was taking on new employees even into the early sixties, and their satisfactoriness was attested by both retention and wage increases. The store was using older people in occasional or part-time work, where they filled a distinct need and were willing to remain available for such work longer than younger persons. Conferences with employers interpreted findings in relation to both the advantages of older workers and adaptations needed for them. Anecdotal material aided interpretation, which especially sought those traits associated with age which might have most value in work. A concerted attack at this time on employment problems of the older person should (it is believed) find types of work most suited to them and ways of adapting to their needs, which should distinctly expand the labor market for them and aid in the national emergency.

Q

First Geriatric Activities in Venezuela.

J. QUINTERO QUINTERO, *Patronato Nacional Ancianos e Inválidos, Caracas, Venezuela.*

The author describes the foundation of the Patronato Nacional Ancianos e Inválidos by the present government. This is the most important institute for the aged and cripples in Venezuela. A report is also given of the first geriatric activities in Venezuela and the general problems related to the aged in this country.

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The Role of Catecholamines, Corticoids, and Electrolytes in Hypertension.

W. RAAB, *University of Vermont College of Medicine, Burlington, Vermont.*

The striking similarity of cardiovascular pathology in conditions as heterogenous as pheochromocytoma, Cushing's syndrome, and essential hypertension suggests a common pathogenic denominator.

Considering the possibility of a joint action of vasopressor catecholamines (norepinephrine and epinephrine) and adrenal mineralocorticoids, we carried out experiments on humans which revealed the following phenomena: (1) The pressor efficiency of infused norepinephrine and epinephrine is enhanced after pretreatment with DCA, (2) during sodium withdrawal the pressor effect of these catecholamines is weakened, and (3) DCA fails to enhance it. Furthermore, the slow pressor effect of DCA itself is increased by ingestion of salt and decreased by salt withdrawal. These observations indicate that sodium plays a role in the pressor actions of the sympathomimetic catecholamines, as well as of DCA, and in the potentiating effect of the latter upon the former.

DCA and possibly other mineralocorticoids has the unique ability to increase intra-cellular sodium concentration (Darrow, Robertson, Gaudino, Woodbury) with resulting alteration of the electrical cell membrane potential. Since the contraction amplitude of muscle cells in response to depolarizing agents, such as norepinephrine and epinephrine (Eccles, Brown, Schaefer), is determined by their membrane potentials (Fleckenstein), it seems that DCA sensitizes the contractile cardiovascular cells to the sympathomimetic catecholamines by means of intracellular sodium deposition. This would apply also to the pressor effects of intrinsic norepinephrine and epinephrine which flow constantly into the cardiovascular tissue both from postganglionic sympathetic fibers and from the adrenal medulla.

This hypothesis would explain the following forms of hypertension: (a) Pheochromocytoma: corticoids and cell sodium about normal but catecholamines in excess; (b) Cushing's syndrome: exaggerated responsiveness to normal catecholamines because of excess mineralocorticoids and intracellular sodium; (c) Hormonal and neurogenic types of essential hypertension: Exaggerated cortical activity is demonstrable in about 20 per cent of the cases (Schroeder). Increased sympathomimetic neurosecretion of norepinephrine and epinephrine into cardiovascular cells is difficult to prove but is suggested in hypertensive patients by increased discharges of catecholamines into the blood during exercise (Raab), in-

creased excretion of urosympathin (Holtz and Kroneberg), and the frequent occurrence of excess catecholamines in hearts of deceased hypertensive patients (Raab). The presence in the brain of relatively large quantities of encephalin, a potent epinephrine-like sympathomimetic amine (Raab), may be a factor in emotional hypertension.

The mechanisms of the three effective forms of treatment for certain types of essential hypertension, sympathectomy, sodium withdrawal, and bilateral adrenalectomy, are readily intelligible on the basis of the above outlined conceptions.

Educational Program for the Older Adult in New York State.

H. F. RABE, *Bureau of Adult Education, New York State Education Department, Albany, New York.*

Conscious of a new challenge to adult education—the challenge of 1,285,000 men and women 65 years of age and over in New York State, many of whom are beset with the problem of finding purposeful activity and a new role of social usefulness—the New York State Education Department is giving due consideration to the aging as a new adult grouping with common needs, for whom the public school has a responsibility. The Department also recognizes the fact that if this responsibility is to be discharged, if a greater number of these mature persons are to be helped by adult education, they will have to be reached in ways other than the traditional night school program.

In the promotion of educational programs for the older adult at the local level, the public schools are being encouraged to reach out into the community where such persons are naturally grouped, in social-recreational clubs typical of the Golden Age variety, in day-centers for older men and women, in pensioners clubs, in homes for the aged, through employee groups in business, industry, and unions. In some cases this requires developing a well balanced social-recreational-educational program, in other cases furnishing teachers or leaders for specific activities, and for the person not yet retired, providing information and guidance to make possible an easier and more satisfying adjustment to retirement and later maturity.

In ways such as these the public schools of New York State are beginning to serve the older adult through specially designed educational programs for aging in addition to community education about the aging.

Experiences With α New Liver Extract for the Treatment of Diabetic Neuropathies.

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Experiences with a new liver extract for treatment of diabetic neuropathies are briefly outlined. The cases include diabetic "cord bladder" of long duration with incontinence of urine and a variety of neuritides of the hyperglycaemic, achlorhydric, vascular, and degenerative types. The striking findings have been complete disappearance of all of the urinary signs in the cases of diabetic "cord bladder" and the complete relief from pain and from limitations of motion of the extremities in the cases of neuritis, regardless of the type of the neuritis or the degree of control of the diabetes. The combined results point to a definite advance in the treatment of these complications of diabetes mellitus.

The Contribution of the Voluntary Societies to the Welfare of the Elderly in the United Kingdom.

D. RAMSEY, *The National Old People's Welfare Committee, 26 Bedford Square, London, W. C. 1, England.*

This paper deals with the work of voluntary societies for old people who are not in need of hospital care. The keynote of the work in the United Kingdom is to help the old person to remain independent as long as possible and when communal care in a home becomes necessary to see that he is treated as an individual and not as one of a herd.

Housing is the responsibility of the local authority, but an important contribution has been made by voluntary societies, both in the form of almshouses in the past and in the establishment of housing associations. Voluntary societies have built specially designed houses for old people, but the majority of their work in recent years has been in the adaptation of existing premises into simple bed-sitting rooms with cooking facilities. In addition voluntary societies provide supplementary services, including meals services, to help old people remain independent in their own homes.

The provision of special clubs for old people has been undertaken by a very large number of voluntary societies all over the United Kingdom. These do valuable work in giving opportunities to old people to make friends and providing a centre to which problems can be brought for advice and help. Many old people, however, are too infirm to come to the

clubs, and the voluntary societies are cooperating with the local authorities to see that old people are acquainted with the facilities that exist for them and arrange visits by voluntary workers in the homes of solitary old people.

In 1940 the National Old People's Welfare Committee was formed, which brought together all the voluntary organizations working for old people as a permanent consultative body. This led the National Committee and the National Federation of Housing Societies to make a joint drive to provide more small communal homes to which old people can go when they can no longer lead an independent life.

The National Assistance Act provides for voluntary societies to assist local authorities in the provision of communal care. An important partnership has been established, for housing associations are eligible for subsidy, both under the Housing Acts and the National Assistance Act.

Behind the recent developments in the field of work for old people, the National Old People's Welfare Committee has exercised great influence all over the United Kingdom. It has been able to represent the views of its constituent bodies nationally, and locally it has established a network of committees based on the same type of representation as the national body.

The Work of the National Old People's Welfare Committee in Great Britain.

D. RAMSEY, *The National Old People's Welfare Committee, 26 Bedford Square, London, W. C. 1, England.*

In 1940 the National Council of Social Service, concerned by the reports of the conditions under which old people were living, called a meeting of voluntary societies which led to the formation of the National Old People's Welfare Committee. Membership now includes all the major voluntary societies concerned with old people and also the local government organisations and advisors from the central government departments.

Its first major activity was to encourage the establishment of Homes for old people who could no longer live independent lives. The Committee has further made representations to the several ministries on matters affecting old people and has presented the considered views of voluntary societies when the National Assistance Act was under consideration.

Each year since 1946 the National Old People's Welfare Committee has held a national conference attended by voluntary societies, local authorities, and the medical profession. Locally the National Committee has established a network of Old People's Welfare Committees with representation similar to its own, but at the local level. These Committees through their constituent bodies provide homes, clubs, meals services, visiting schemes, chiropody, etc. The local committees are serviced by the National Committee, which issues circulars and a quarterly *Bulletin*.

The National Committee was totally financed by voluntary societies until 1949. Since then it has received some economic support from the Ministry of Health. Since 1949 local authorities have been permitted to give a 50 per cent grant to the Local Committees, but this is not compulsory. Certain financial grants are available for meals services, clubs, and homes.

Special Designs for Living for Older People.

O. A. RANDALL, *Community Service Society of New York, 105 East 22 Street, New York 10, New York.*

Living arrangements to be suitable for people of any age must be designed to satisfy physical and social needs. Planning such arrangements for older people must be predicated more firmly upon this basic principle than is necessary for younger people. Experience demonstrates the validity of special housing and its practicality. It proves beyond a doubt that independence in the management of daily lives can be maintained for a longer period than might otherwise be possible. It further proves that the protection provided through service as an integral part of the living arrangement is as important as are the physical details of the housing structure. Environmental factors—location and accessibility to local facilities — contribute essentially to the effectiveness of the housing.

Tompkins Square House in New York City through its twenty years of operation is indisputable testimony of the part which imagination and thought can play in preliminary consideration of the people to be housed. There are many elements of this particular demonstration which are adaptable to public or private housing projects for older people.

Growth Changes in the Adrenal Gland of the Dog From Birth to 2 Years of Age.

K. H. RANDOLPH, R. GETTY, H. L. FOUST, *and* F. K. RAMSEY, *Department of Veterinary Anatomy, Iowa State College, Ames, Iowa.*

The source of material for this study was 212 dogs ranging from full-term to 2 years of age. A decrease

from birth to adult age occurred in the weight relationship of the adrenal to total body weight. This decrease was less in the female than in the male. Clumps of capsular cells seemed to be continuous with those of the cortex, thus appearing to give rise to glomerulosal cells. There seemed to be some differentiation of capsular cells into cortical and medullary types simulating those into which they appeared to be developing.

The granularity, which was considered to be evidence of functioning, increased from the outer cells of the fascicular zone of the cortex through the indistinct reticularis, or its anlage, to the medullary region.

Trabeculae growing in from the capsule may provide passageway for blood vessels and nerves and may affect the course of migrating cells from the glomerulosa. Replacement of adrenal cells in dogs of all ages studied, appeared to be from cells originating in the capsule. Small groups of medullary cells in the cortex gave staining reactions characteristic of medullary region cells, and appeared to be migrating toward the medulla. These growth changes will be illustrated and discussed.

Adrenal Cortical and Medullary Participation in Experimental Renal Hypertension.

L. J. RATHER, *Department of Pathology, Stanford University School of Medicine, Stanford, California.*

In hypertension induced in albino rats by the removal of one kidney and constriction of the other there is a direct proportionality between heart and adrenal weight. The adrenals, which may reach three times the normal weight, are enlarged due chiefly to growth of the cortex. However, the relative degree of medullary growth has been found to exceed that of the cortex, measurements of cortical/medullary volume ratio showing that while the cortex doubles or at best triples in size the medulla may increase as much as fivefold. These increases in the weight of the cortex and medulla are accompanied by increases in nuclear and cell size.

Lipid depletion of the cortex is not a prominent feature. In paraffin sections of the largest adrenals single or multiple hyaline droplet inclusions occur within the cortical fasciculata and may be as large as the nucleus. These react with leukofuchsin-sulfite after periodic acid oxidation. The fact that the reaction can be reversibly blocked by acetic anhydride acetylation in pyridine strengthens the presumption that these bodies contain the 1, 2, glycol linkage. They are not digested by salivary amylase.

Few studies have been made of adrenal size in experimental renal hypertension, although in human essential and renal hypertension numerous investigators have claimed that increases in weight occur and have described histo-cytologic changes in the cortex and medulla. Such studies have been the subject of much controversy. Any direct participation of the cortex in the production of a final pressor substance (such as a governing influence on the production of hypertensinogen by the liver) might account for the proportionality between heart and adrenal weight on the premise that increased function is associated with increased growth.

With respect to the general adaptation syndrome, Selye claims that only the cortex and not the medulla undergoes increased growth. Another possibility to be considered relates to the enlargement of the adrenals associated with prolonged muscular work. Hajdu and Korenyi have found relative increases in medullary size in such adrenals, quantitatively similar to ours in hypertensive rats. We have been unable to produce medullary growth or the characteristic intracytoplasmic bodies with ACTH alone.

The Place of the University in the Education of the Aging.

W. H. REALS, *University College, Washington University, St. Louis 5, Missouri.*

The University is acknowledged to have two principal functions: (1) research, the extension of the boundaries of knowledge, and (2) dissemination of knowledge. In its research activities its boundaries have been as broad as life itself, and the lives of all have been enriched thereby. In the dissemination of knowledge, its teaching aspect, it has until fairly recently regarded its clientele to be served as the youth who attend full-time, either on the undergraduate or graduate level, but today its leaders believe that education must be a life-long process, for it is not possible to prepare one for a lifetime.

With respect to research, the University's services to the older population have been most conspicuous in schools of medicine but there have been outstanding contributions in other departments, notably psychology and education. Beginning with the studies of Thorndike at Columbia University, and his publication of *Adult Learning* in 1928, there have been many contributions, studies which have been continued by Lorge and others. These studies have given encouragement to the adult educator in many ways. They have been especially encouraging to those working with the older persons.

The University in the education of the aging has two principal responsibilities: (1) research, psycho-

logic and other, underlying an adult program, and (2) the dissemination of such information to all adult educational facilities serving the older population. The University cannot itself hope to serve directly a very large segment of the older population, but in providing training opportunities to the numerous workers in the field, its influence can be far-reaching.

Cholesterol Arteriosclerosis in the Rabbit and Its Inhibition by Choline, Methionine, and Inositol.*

J. A. d. Reis, Jr., *Calcada da Ajuda 145, Lisbon, Portugal.*

The Surgical Treatment of Degenerative Arthritis of the Hip in the Aged (Malum Coxae Senile).

F. C. Reynolds *and* J. A. Key, *Department of Orthopedic Surgery, Washington University School of Medicine, St. Louis 10, Missouri.*

This disease is the most frequent and important cause of disability in the locomotor system in old age.

In individuals in whom there is an incongruity between the head of the femur and the acetabulum as a result of disease or injury in early life, or in whom there is aseptic necrosis of the head following a fracture or dislocation of the hip, degenerative arthritis of the hip may be expected to develop. However, the condition also develops in individuals in whom the hip appears to be normal and in these instances the cause is unknown. Once the degenerative changes have been inaugurated they tend to progress and many of these patients experience considerable pain and incur disability. Surgeons have attempted to relieve these patients by various operative procedures. The number and variety of these operations indicate that there is as yet none which is satisfactory to the majority of orthopedic surgeons.

The objects to be obtained are, first, freedom from pain, second, stability of the hip in a satisfactory position and, third, movement of the hip. The stability and movement are important in the functioning of the extremity. The operations which are now in most common use are: (1) neurectomy, (2) acetabuloplasty, (3) capsulotomy and debridement of the hip, (4) subtrochanteric osteotomy, (5) arthrodesis, (6) arthroplasty, and (7) a prosthetic proximal end of the femur. The advantages, disadvantages and indications of these operations will be discussed.

Adequate Parenteral Nutrition in the Elderly Surgical Patient Without Overhydration.

C. O. Rice, *Department of Surgery, University of Minnesota School of Medicine, Minneapolis, Minnesota.*

Parenteral nutrition is attained with invert sugar, amino acids, and alcohol. One thousand calories per liter can be given by using a solution containing 12 per cent invert sugar, 6 per cent amino acids, and 4 per cent alcohol. Vitamins and electrolytes are added to this mixture as needed.

Slides showing the blood sugar and blood alcohol levels during the administration of parenteral feeding will be presented. The value of alcohol as calories will be demonstrated in nitrogen balance study. Alcohol also possesses other desirable side effects.

Water balance studies will indicate the degree of water equilibrium during the post-surgical phase.

Urine volume studies will show that oliguria is associated with the subfascial administration of hypertonic solutions. Hypertonic solutions are therefore contraindicated in the malnourished or dehydrated individual. It is also contraindicated in patients who present a marked hypoproteinemia or anemia.

A series of elderly surgical patients will be reviewed in table form illustrating the results and associated complications.

The Relation of Age to the Effect of Morphine on the Metabolism of Mouse Brain.

R. Richer, K. Stern, *and* M. K. Birmingham, *Allan Memorial Institute, 1025 Pine Avenue, West, Montreal, Canada.*

The rate of respiration and anaerobic glycolysis is lowest at birth and increases until the twentieth day when the adult value is reached.

Morphine in high concentrations (0.01 M) inhibits the rate of respiration and increases the aerobic and anaerobic glycolysis of mouse brain homogenates. The greatest effect in respiration and glycolysis is seen in animals younger than 10 days. In glycolysis there is also a period of least effect, between the thirtieth and fiftieth day. These results are similar to the observations of other workers on the variation, in vivo, of toxicity of morphine with age.

The maintenance of the rate of respiration is improved, that of the rate of anaerobic glycolysis decreased, by the presence of morphine in the medium. The rate of respiration of brain slices is less well maintained in the presence than in the absence of morphine.

Morphine in the presence of pyruvate causes a statistically significant increase of the respiratory quotient of mouse brain homogenates.

Studies of Human Arteriosclerosis and Experimental Arteriosclerosis of Pyridoxine Deficiency.

J. F. RINEHART, H. D. MOON, *and* L. D. GREENBERG, *Division of Pathology, University of California School of Medicine, San Francisco, California.*

The essential histologic detail of arterial structure is reviewed. The sequences of changes seen in the evolution of arteriosclerosis of the coronary arteries are set forth. Particular attention is directed to the interfibrillar ground substance which, although it is a highly important structural and functional element of the arterial wall, has received but scant attention.

In arteriosclerosis of the coronary arteries initial changes appear to involve a swelling of the mucoid interfibrillary ground substance of the intima associated with fibroblastic proliferation and deposition of collagen and at times of elastic tissue fibers. Frequently these changes are associated with degenerative changes in the internal elastic lamina. Concomitant with the intimal changes the ground substance of the media may show swelling. While lipid may be demonstrated in some of the early lesions it frequently is *not* present or involves only a portion of the thickened intima. Consequently we believe that the lipid deposition is a secondary phenomenon and not an essential part of the arteriosclerotic process. More advanced lesions nearly always contain lipids which are usually deep in the sclerotic plaque, and these accumulations may well be due to seriously impaired metabolic exchange due to anoxia.

The essential nature of the experimental arteriosclerosis produced in the rhesus monkey subjected to protracted pyridoxine deficiency is reviewed. Here too, the basic lesion involves swelling of the ground substance of the vessel wall associated with cellular proliferation and deposition of collagen and elastic tissue fibers in the swollen ground substance. The widespread arterial lesions of pyridoxine deficiency are described and illustrated.

The basic pathologic processes of the experimental disease is similar to arteriosclerosis in man. It is known that pyridoxine is important in protein metabolism, particularly in the mechanisms of transamination. The ground substance of the blood vessels is a mucoprotein; the structural defect occurring in pyridoxine deficiency may be due to impairment of transamination. Pyridoxine is required by man. The minimal amounts needed for optimal metabolism are not known.

Severe Functional Mental Disease in Extreme Old Age.

G. W. ROBINSON, JR., *and* J. D. DEMOTT, *Department of Medicine, University of Kansas School of Medicine, and the Neurological Hospital, Kansas City, Missouri.*

For some time it has been known that the majority of mental diseases which develop in the latter years of life are functional in etiology rather than organic. There have been many reports on the treatment of severe depressions in patients over 60 with electroshock. The results have been excellent. It is believed that these principles should apply regardless of the age of the patient. A small series of patients over 80 with severe depressions who were successfully treated with electric shock are presented.

These results would seem to indicate that regardless of the age of the patient the presented symptoms are the important factor in diagnosis and prognosis and not the chronologic age.

Several Gastro-Intestinal Problems of Particular Importance to the Older Patient.

S. W. ROBINSON, *Department of Medicine, Ohio State University College of Medicine, Columbus, Ohio.*

Interest in the geriatric patient was stimulated by an awareness of inconsistency in decisions concerning elective surgical procedures in older patients. A study of hospitalized patients over the age of 60 was made and this will be briefly reported.

A discussion will follow of certain problems that occur in the management of cholelithiasis, hiatal hernia, and peptic ulcer.

Relation of Separate Neural Arch to Age.

M. B. ROCHE *and* G. G. ROWE, *Departments of Surgery and Anatomy, Washington University School of Medicine, St. Louis, Missouri.*

Separate neural arch, most often found at the lower level of the lumbar spine, occurs in approximately 5 per cent of the total population. There is need to define its etiology since this is an ever oc-

curring consideraion in the clinical management of low back pain.

At least two opposing theories have been suggested: the congenital and the acquired. The acquired includes various possibilities. Separation of the neural arch has been suspected of materializing in the mature or aging years—a deossification of bone, perhaps, at an area of strain over prolonged periods of weight-bearing through musculo-skeletal malalignments. Again, the evolution of the lesion has been allocated to childhood or the developmental years. At such a period it has been suspected variously of being the product of residual structural defects, or vascular deficiences, or of the regular trauma that characterizes the growing child's activities.

In this investigation the following groups were examined for the presence of separate neural arch: 1) fetal and neonatal cadavera, 2) 4,200 skeletons between 20 and 80 years of age, and 3) selected groups of children between 3 and 14 years of age (by means of roentgenograms). From these data the age period at which such bone alterations most probably occur has been determined. The incidence was found to vary with race and sex. In addition, coincidental lesions, including associated congenital anomalies and arthritic degenerative changes, have been tabulated and their significance to neural arch defects clarified.

Age Changes in the Kidney of the Guinea Pig.

J. B. ROGERS, *Department of Anatomy, University of Louisville School of Medicine, Louisville, Kentucky.*

Gross and microscopic changes observed in the study of the kidneys of guinea pigs of known age will be reported. Since 1941 the colony of guinea pigs at the University of Louisville has been fed a diet consisting of alfalfa hay, oats, cabbage, salt, and water. Contact with other laboratory animals and with humans has been at the minimum. No epidemic diseases have occurred.

The animals have been placed in the following age groups: 200 to 365 days (young adults), 366 to 730 days (mature), 731 to 1095 days (old), and 1096 to 2578 days (senile).

The results of approximately 600 postmortem studies will be presented. Many of the animals, particularly the old and senile animals, were sacrificed while in good physical condition. However, animals found dead in cages from various causes have been included.

The gross changes observed have been hemorrhage, perinephritic abcess, and cysts. Cysts are small and uncommon in younger animals and are relatively large and common in senile animals.

The microscopic changes observed have been fatty infiltration of the proximal convoluted tubules, dilation of proximal convuluted tubules, distal convoluted tubules, and Bowman's capsules. Thickening of the adventitia of interlobar arteries has been seen. Obliteration of glomeruli was characteristic of senile kidneys.

Spontaneous Tumors of Senile Guinea Pigs.

J. B. ROGERS, *Department of Anatomy, University of Louisville School of Medicine, Louisville, Kentucky.*

The incidence of spontaneous tumors of guinea pigs will be reported. These tumors were found in senile animals in a colony which has been inbred since 1941.

An adequate diet of oats, cabbage, salt, alfalfa hay, and water has been fed.

The number of contacts with other laboratory animals and with humans has been kept at the minimum. No epidemic disease has invaded the colony.

The animals in the colony have been arranged as families. Each family consists of descendants of a female ancestor. Some of these families survive a short time, others a long time.

Guinea pigs which survive more than 1095 days (3 years) are considered senile. Approximately 160 animals have become senile, and of these 40 are still alive. Postmortem examination has been made on 120 animals which have died or have been sacrificed.

Ten tumors were found at autopsy and 2 are present in surviving animals. These tumors have been found in 2 families in which many senile animals have been produced.

On microscopic examination the tumors have been classified as: fibrolipoma, hamartoma, ovarian cyst, lymphoblastoma, leiomyoma, and myxosarcoma.

The incidence of tumors in senile animals of certain families in our colony is reported.

Esperimenti su Alcuni Veleni Mitotici.

P. RONDONI, *Istituto di Patologia Generale della Università di Milano, Milan, Italy.*

1. Culture di tessuti dalla regione cardiaca di embrioni di pollo: un derivato acridinico (atebrina, italchina) dimostrò a diluizioni fino a 1:400.000 un effetto simile a quello della colchicina. Inoltre in alcune culture trattate furono trovate delle cellule che rassomigliavano a cellule con pseudopodi sferici peduncolati descritti da Tennenbaum e Dolianski

(*Cancer research, 3:* 385, 1943) in culture di sarcoma di Rous. La cantaridina danneggiò fortemente le culture e arrestò la crescita. La riboflavina fosforilata dette una leggera inibizione della crescita (diluizione 1: 24.000) : la ricerca è ancora in corso.

2. Rigenerazione di tessuti *in Triton* : la influenza del 3,4-benzopirene della colchicina, dell-etiluretano, del cianato di sodio fu studiata.

3. Ricerche su alcuni enzimi: NaCNO ha un effetto inibente sulla papaina, che può essere soppresso dalla cisteina. Questo composto reagisce coi gruppi—SH della cisteina. Esso inibisce pure la succinodeidrasi del fegato di ratto, qualora l'enzima e il NaCNO siano mescolati e incubati a 38°C avanti dell'aggiunta del substrato; si osserva soppressione ad opera di cisteina. L'uretano ha leggerissima o nessuna azione inibitrice rispetto alla succinodeidrasi del fegato. Le fosfatasi acide od alcaline del siero umano sono leggermente inibite dagli idrocarburi cancerogeni, fortemente dalla caffeina; le fosfatasi alcaline sono inibite dall'azotoiprite e da un derivato stilbenico; le fosfatasi acide sono spesso attivate da tali composti.

Financing of Health Services.

C. R. Rorem, *Hospital Council of Philadelphia, Philadelphia, Pennsylvania.*

Aged persons tend to have greater need for personal health services, but less individual resources for payment, than younger members of the population. They do not go to hospitals more often, but they usually stay longer for treatment and convalescence.

Voluntary health insurance plans, particularly Blue Cross and Blue Shield, permit retired individuals to continue their protection after they leave their place of employment. But the annual incomes of many retired persons are often so limited that large numbers are unable to finance their own medical care without assistance from taxation or philanthropy.

Good health service costs money. Medical care for the aged requires an integrated program of personal and institutional care for the 10,000,000 or more individuals beyond 60 years of age in the United States. Students of gerontology may well consider the financing of health service as a specialty in this new science.

Some Observations on a Colony of Aging Mice.

P. D. Rosahn, *Research Laboratory, New Britain General Hospital, New Britain, Connecticut.*

For the past several years this laboratory has maintained a small colony of C57 black mice which have been observed from birth to natural death. The animals under study were all virgins, bred in this laboratory through brother-sister and back-cross matings, insuring a homogeneous genetic pattern. After weaning, the mice are segregated in individual cage compartments where they are housed until natural death. The colony occupies an air-conditioned room having a temperature range of 65 to 70 F. Compressed commercial food pellets and a free supply of water are supplied. At death all mice are autopsied and appropriate tissue studies are made. The present report presents certain interim observations on these normal mice.

1. Longevity in Virgin Males and Females: The life span of all males was compared with that of litter-mate females. The mean length of life of the female group exceeded that of the male group by 100 days, and this difference was statistically significant. The final tabulations will probably show a slight change in the magnitude of the difference, but they will not alter its direction or its significance. Femaleness in the mouse favorably influences longevity.

2. Cardiovascular Disease: Focal and diffuse fibrosis of the myocardium accompanied by pulmonary edema and chronic passive congestion of the liver has been observed. An organized arterial thrombus occurred in one heart, with a fresh necrotizing infarct. Many of the aged animals have arterial changes characterized by fraying, reduplication, and hyperplasia of elastic tissue.

3. Prostatic Hyperplasia: A relatively frequent finding in the aged male mouse is benign hyperplasia of the prostate gland. The prostate in such instances is grossly enlarged, and microscopically reveals changes identical with those seen in hyperplasia of the human gland. Urinary obstruction is a frequent end-result, with retention, hydronephrosis, and uremic death.

Geriatric Management of Prostatism.

D. K. Rose, *Washington University School of Medicine and Barnes Hospital, St. Louis, Missouri.*

Dorland's Medical Dictionary defines prostatism as "a morbid state of *mind* and *body* due to prostatic

disease especially the condition which results from obstruction to urination due to prostatic hypertrophy." It is true that the symptoms of prostatism carry abnormal significance to many men. Dysuric symptoms often are increased by worry. There are ways and means to relieve many of these symptoms without surgery.

The diagnosis includes a physiologic analysis of symptoms which are interpreted to the patient on a basis of bladder and prostate function.

After all necessary laboratory results are obtained, a clear picture of the urologic status may be obtained by an intravenous pyelogram. In this examination, and immediately before the last film is taken, the patient is instructed to void. By this means we can demonstrate the presence or absence of a residual urine without catheterization. Even a cystoscopic examination may safely be omitted when the history, symptoms, urine, rectal examination, and intravenous pyelograms strongly suggest an uncomplicated prostatism.

Cancer is considered separately.

It is necessary to be sure that the primary geriatric problem is not contributing to the dysuric symptoms.

Hospital Construction Problems in Relation to the Aged Patient.*

E. D. ROSENFELD, *Long Island Jewish Hospital, 71 West 47 Street, New York 19, New York.*

The Depressor Effect of Potassium Deprivation in Normotensive and Hypertensive Rats.

R. H. ROSENMAN, S. C. FREED, *and* M. FRIEDMAN, *The Mount Zion Hospital, The Harold Brunn Institute for Cardiovascular Research, San Francisco, California.*

The importance of potassium in maintaining the structural and functional integrity of the cardiovascular system as well as other body tissues has been well established. It has only recently been shown by Freed and Friedman, however, that prolonged potassium deficiency also effects a profound disturbance of circulatory dynamics. Thus, it was noted that normal rats deprived of potassium exhibited a progressive, marked lowering of the blood pressure. It has also recently been found in this laboratory that prolonged potassium deprivation in hypertensive rats (Grollman technic) induces a profound decrease of the blood pressure to normotensive or even hypotensive levels.

The depressor effect is distinctly related to the deficient potassium intake, but evidence has also been obtained that the depressor response is prevented by simultaneous sodium deprivation. In both normal and hypertensive rats the fall in blood pressure was not correlated with anatomic changes in the myocardium which may follow chronic potassium deficiency. The blood pressure soon returns to hypertensive levels when potassium is restored to the diet. It is of considerable interest that marked temporary hypotension has been recorded in a variety of clinical conditions in association with potassium deficiency.

The mechanism of the depressor response to potassium deprivation in normal and hypertensive rats has not as yet been fully clarified. Studies of the vascular reactivity in potassium-deficient rats have demonstrated a markedly decreased pressor response to intravenous epinephrine, nor-epinephrine, angiotonin, and renin. Controlled studies have shown this to be specifically related to the deficiency of potassium. The poor vascular reactivity induced by potassium deprivation is believed to be an expression of decreased arteriolar tone and it is suggested that a decreased peripheral resistance may contribute significantly to the depressor effect that has been observed.

The vascular reactivity, measured by the pressor response to these test substances, returns to normal within an hour after the subcutaneous injection of isotonic potassium chloride. The rapid return of the blood pressure and of the peripheral vascular reactivity to a normal state following injection of KCl strongly suggested that the weakness and general inanition which may occur in prolonged potassium deficiency are not responsible for the depressor effect. Other studies on the mechanism and relation of potassium to the blood pressure will be discussed.

The Effect of Overfeeding and Starvation on the Life Span and Reproduction of Tokophyra infusionum, a Protozoan of the Class Suctoria.

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Tokophyra infusionum belongs to a unique group among protozoa as to its feeding habits and manner of reproduction. Instead of binary fission Tokophyra

reproduces by endogenous budding and the reproducing adult survives for a period of weeks or months. There is an easy control as to the amount of food ingested because Tokophyra feeds only on living ciliates.

The experiments resulted in the following findings. The amount of food determines the life span and reproduction rate. Individuals kept on a meager diet or starved intermittently have a longer life span than those fed abundantly every day. Tokophyra is able to feed without interruption and therefore it is easy to create a state of overfeeding. An individual feeding constantly for over two days stops reproduction and disintegrates after few hours. Overfeeding shortens life rapidly. But a starved Tokophyra is able to survive for about two weeks.

On the other hand, well fed individuals have a higher reproduction rate than those on a restricted diet. When the amount of food exceeds the optimum the reproduction rate drops rapidly. It was found also that complete starvation for some days stops reproduction entirely. However, intermittent starvation increases the reproduction rate.

La Rigidez Senil.

R. Ruiz Lara *and* L. Barraquer Bordas, *Servicio de Geriatría del Hospital Municipal de Nuestra Señora de la Esperanza, Barcelona, Spain.*

Estudiamos como rigideces seniles, aquellas que se presentan en la musculatura del esqueleto, refiriendonos unicamente a las que aparecen en la edad senil. Dividimos la rigidez senil en dos tipos: piramidal y extrapiramidal.

Las rigideces piramidales se producen por la lesion del tracto piramidal y el sistema inhibitorio del tono (muy bien estudiado por Magoun y Col.). Los caracteres de este tipo son la liberacion y la exaltacion de los reflejos de traccion (hiperreflexia y espasticidad.) y la liberacion del "automatismo medular," con el signo de Babinski, el reflejo de defensa y el de extension cruzada. Este cuadro puede ser observado en casi todas las hemiplejias, pero su aspecto mas tipico lo ofrece el sindrome pseudobulbar del estado lacunar. Sistematizamos la semiologia de este de rigidez, en relacion con los nuevos puntos de vista de la via piramidal.

Consideramos como rigideces de origen extrapiramidal propiamente dichas, aquellas que aparecen principalmente en la lesion del pallidum y de la sustancia nigrica. Damos una descripcion detallada y diferencial de estas rigideces en la relacion con los signos de precoz aparicion ("la anisoestenia cerebelopalidal" de Bung), y estudiamos su destribucion, su naturaleza, y el estado de los reflejos superficiales y profundos, la presencia o ausencia de sincinesias etc.

Distinguimos los distintos tipos etiologicos de la rigidez senil extrapiramidal. Estudiamos primero el tipo arteriosclerotico de Foerster con sus caracteres fundamentales: la catotonia, las alteraciones de la denervacion y el oposicionismo (Lhermitte y col.). Estudiamos sus diferencias con la enfermedad de Parkinson senil, y con la forma asociada a la demencia senil que fue descrita por Jacob.

Insistimos en la presencia de sintomatologia extrapiramidal en el sindrome pseudobulbar, producido por el estado lacunar. Tambien analizamos las formas tardias del parkinson-postencefalitico.

Examinamos detenidamente las opiniones de Lhermitte, Thurel, Foix, Critchley, Denny-Brown y Van Bogaert, en relacion con la conexion entre el sindrome de Foerster y la cerebroesclerosis de Marie.

Finalmente describimos la forma periferica de la rigidez senil miosclerotica, descrita por Lhermitte.

El estudio anatomico de todos los casos presentados ha sido realizada por el Dr. Ludo van Bogaert, del Instituto Bunge de Berchem, Anvers, Belgica.

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Establishing Retirement Programs Through Collaterial Groups.

A Salamone, *Department of Adult Education, St. Louis University, St. Louis, Missouri.*

Every business organization is deluged with questions from personnel who are about to be retired. These people seek advice about pensions and other problems of transition to retired status. These questions could have been foreseen and might better have been dealt with at an earlier age. Capacity to make adjustments diminishes with years. Hence the need for well-planned, well-organized retirement programs in every business organization. Even when there is financial competence, there is a profound problem of adjustment.

The aid of collateral groups should be enlisted so that we will have a general coverage of a large population.

We have thought of retirement as something negative and lonely, an end from which there are no beginnings. This old idea is both a preconception and a misconception. It is not a dark and futile marking of time. It may be measured in years of creative living, community activity, contribution, participation, etc.

The collateral groups can:

1. Assist in organizing a central point in each community for disseminating information about retirement programs, for exchange of ideas, etc.

2. Discuss within each group the prospect of retirement to prepare certain types of persons psychologically.

3. Work out a plan to assure employment and security to older persons wherever feasible.

4. Expand educational and recreational activities for aged within their respective groups.

5. Establish counseling and guidance bureaus.

6. Begin exploring a retirement education program for over-middle age adults still a long way from retirement.

Disorders of Protein Metabolism as Humoral Indices of Plethoric Disease.

G. SCARDIGLI, I. SALVINI, *and* F. GRANDONICO, *Medical Clinic, University of Florence, Florence, Italy.*

After defining the conception of plethora and reviewing the literature in this field the authors report the results of determinations of total plasma protein and of various protein fractions in patients suffering from diseases referable to the plethora group (arteriosclerosis, coronary insufficiency, diabetes, obesity, gout). Both patients with established thrombosis and patients without evidence of vascular occlusion exhibited the same changes in plasma protein values, although in different degrees.

The most important of these changes consisted of a rise in the plasma fibrinogen and globulin concentration (particularly of the euglobulin fraction), with a decrease in the albumin content and in the albumin/globulin ratio. These changes were present in all the cases examined.

The authors emphasize the significance of their findings in providing evidence for the existence in plethoric diseases of a disorder in protein metabolism in addition to the disturbances in carbohydrate and in lipid metabolism present in these conditions.

Vascular Mesenchymal Changes in Old Age.

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In 142 consecutive patients of both sexes, from 50 to 75 years of age, the authors have measured the capillary resistance; in 70 per cent of the examined individuals this resistance was found decreased, as shown by positivity of performed tests.

The authors discuss the methods they have employed and suggest—on the basis of data resulting from hematologic examination and from the serum flocculation tests — that a more or less significant change in the small vessels is present in a large percentage of subjects between 50 and 75, even in the absence of clinically manifest lesions.

Evidence is given of the important role which the vascular mesenchyma plays in the pathogenesis, prognosis, and therapy of various syndromes of old age. The authors believe that such changes in the vascular mesenchymal system might be considered one of the physiopathologic factors in the aging process.

Differential Mental Deterioration in Later Maturity.

K. W. SCHAIE, F. ROSENTHAL, *and* R. M. PERLMAN, *Institute of Endocrinology and Gerontology, San Francisco, California.*

Wechsler and others have indicated that a steady deterioration of mental capacity occurred with aging. Few other attempts have been made to correlate the incidence and/or nature of such decline with later maturity; especially, this is true where determinations of rates and types of differential decline are concerned.

The present report stems from a pilot study involving a group of 62 male and female subjects, ages ranging from 55 to 75 years, who were given the SRA (Science Research Associates) Primary Mental Abilities Test Battery which, theoretically, enables analysis of different declining mental factors: Verbal Meaning, Word Fluency, Reasoning, Space, Number. Data relating speed to the performance of older subjects are supplied, also, from the results of this investigation.

Inactivation of Pressor Substances in Hypertension.

H. A. SCHROEDER, *Hypertension Division, Department of Internal Medicine, Washington University School of Medicine, St. Louis, Missouri.*

Pherentasin, a pressor amine containing a carbonyl group, has been isolated from the blood of almost every patient with hypertension, but was not found in normotensive states. Attempts to inactivate it in vivo proceeded along two lines. Certain hydrazine compounds, notably 1-hydrazinophthalazine ap-

peared to have an anti-hypertensive effect in many cases when given by mouth to 50 hypertensive patients. The drug could be administered on an ambulatory basis.

Certain straight chain sulfhydryl compounds were found to show specific effects on the hypertension of rats, while not affecting the blood pressure of normal animals. In addition, these compounds depressed or inhibited the pressor action of nor-epinephrine, epinephrine, tyramine, arterenone, angiotonin, and pherentasin, while not affecting that of tryptamine, phenethylamine, or isoamylamine The action may be on carbonyl or hydroxyl groups. The hypertension of dogs and of man appeared to be affected by certain sulfhydryl compounds.

A Psychologic Study of a 106 Year Old Man: Contribution to Dynamic Concepts of Aging and Dementia.

D. B. SCHUSTER, *Department of Psychiatry, University of Rochester School of Medicine and Dentistry and Strong Memorial Hospital, Rochester, New York.*

This is a case study of a 106 year old man studied in a medical department of a municipal hospital by internists and psychiatrists and subsequently followed as an out-patient by members of the Department of Psychiatry. He proved interesting because of absence of dementia and because of the psychologic resources he utilized to maintain an active life. Clinical psychologists tested him with a variety of techniques, finding better than average intellectual endowment, lack of dementia, and unusual emotional resources, functioning in an integrated manner not to be expected in an old person. His past history and current life indicate one who has been successful and adaptable.

Dementia is discussed in general and a concept is developed of viewing it as a dynamic process consisting of both physiologic and psychologic factors resulting in impairment and finally breakdown of ego functions. It is speculated that the psychologic resources and adaptability of an individual play an important role in not only maintaining one's equilibrium in the face of aging, but in actually resisting the onset of dementia even in the presence of brain damage consequent to aging. The lack of relationship between the latter and clinical signs of dementia is pointed out. It is then asked how much of a symptom of dementia can be attributed to loss of brain tissue and how much to specific psychologic factors.

This case is analyzed in an attempt to indicate what personality resources this man has and how they have been utilized to resist the incursions of age and help to maintain the intact functioning of the ego.

Group Therapy of Obesity in Elderly Diabetics.

E. D. SCHWARTZ *and* J. I. GOODMAN, *Diabetes Clinic, Department of Medicine, Mt. Sinai Hospital, Cleveland, Ohio.*

Group therapy has been given a tremendous impetus by experience with its use in World War II. The psychogenic basis for most cases of moderate to marked obesity has been emphasized in recent years. The emotional factors in diabetes per se have been subject to increasing discussion. The widespread difficulty in effecting and maintaining the desired weight reduction in obese diabetics is understandable when the strong emotional factors are considered.

A group of obese diabetic patients at a hospital clinic, who had resisted weight reduction for a long time under routine clinic management, were formed into a class. The great majority of the members were over age 50. Various aspects of obesity and weight reduction, eg., emotional factors, were briefly discussed each week by the group leader as a basis for discussion by the class. Ventilation of personal problems in relation to weight reduction was encouraged, the problems being discussed by the group. Weekly progress of each individual was noted and reasons for failure usually pointed out by other members. Significant weight reduction was obtained in a considerable number of previously recalcitrant cases. The effectiveness of a group therapy as a stimulus for active cooperation by elderly individuals is noted.

Some Effects of Phenylalanine, Methionine, and Threonine Deficient Diets on the Rat.

E. B. SCOTT *and* C. SCHWARTZ, *Departments of Anatomy and Biochemistry, University of South Dakota School of Medicine, Vermillion, South Dakota.*

Male rats were fed a synthetic diet of a mixture of sucrose, fat, salts, vitamins, and 19 amino acids. Experimental animals received the same diet lacking the amino acid under investigation.

Absence of phenylalanine, methionine or threonine resulted in atrophy of the testes and accessory glands. These atrophic changes were more severe in

the phenylalanine or threonine deficient rats than in those lacking methionine. Spermatogenesis was absent in the former two, but not in the latter.

Adrenals of methionine or threonine deficient rats were unaltered. Eight of 10 phenylalanine deficient rats showed atrophy of the zona glomerulosa of the adrenal glands. Other areas of the adrenals appeared normal.

Alteration of the anterior pituitaries was different in each of the deficiencies studied. The lack of phenylalanine caused a decrease in acidophil size and staining reaction, while the basophils were not significantly changed. Methionine deficiency also resulted in decreased acidophil size but the basophils were enlarged, many of them vacuolated, resembling castration cells. Lack of threonine resulted in a decrease in number of the basophils, but not of the acidophils. Extensive cellular deterioration was present. It was impossible to identify the degenerate cells because of their lack of cytoplasm and nuclear content.

Counselling Older Applicants for Employment.

W. G. SCOTT, *National Employment Service, Toronto, Ontario, Canada.*

Almost four years ago an interesting experiment was begun in Toronto, Canada — the counselling of older applicants for work. The project was under the National Employment Service, which was, according to the Director of the New York State Joint Legislative Committee on Problems of Aging, the first state employment service in the world to recognize the plight of the older unemployed and to seek to remedy it through counselling.

The first task of the Unit was to train its members in the philosophy necessary for interviewing older persons. Relevant literature was studied. Courtesy was deemed an essential. This would manifest itself in a real interest on the part of the counsellors in the stories of the applicants. Everything—their academic and employment successes and failures, their health conditions, their personal problems, and their ambitions were all treated with the utmost consideration. During the interviews the applicants gained insight into their possibilities so that they had little difficulty in each naming three or four suitable job desires.

Some interesting facts:

(1) Practically two-thirds of the applicants secured work directly after counselling—one-half of these being over 60 years of age. Two-thirds of these persons secured their own jobs unassisted after counselling. Ninety per cent of all persons securing work were still employed at the same jobs eighteen months later.

(2) Prestige came to the National Employment Service for recognizing the problem of the older job seekers and doing something practical to solve it.

The work has now been enlarged to include four Ontario cities.

Hematologic Values in the Aged.

J. B. SHAPLEIGH, S. MAYES *and* C. V. MOORE, *Department of Internal Medicine, Washington University School of Medicine, St. Louis, Missouri.*

Published information on the normal range of hematologic values in the aged has been reviewed; in addition, supplementary observations have been made on 50 men and 50 women over 60 years of age. Even though the accumulated data are scanty and incomplete, they establish the fact that the peripheral blood and bone marrow do not change strikingly as people grow older.

The total volume of red, hematopoietically active marrow probably decreases, but the amount which remains is able to maintain erythrocyte values at levels only slightly lower than those found in young adults:

	Red Blood Cells	Hemoglobin	Packed Cell Volume
Men	4.73 millions/mm³	14.09 gms. Hb./100 cc.	43.69%
Women	4.56 millions/mm³	13.47 gms. Hb./100 cc.	40.46%

The above mean values obtained for men are slightly higher than for women, but the difference between the two sexes, normal in young adults, is decreased. Corpuscular constants, reticulocyte percentages, and morphologic characteristics of the erythrocytes were within normal limits.

No consistent change was found in the total number of white blood cells (mean figures: men 7,145 cells/mm³; women, 6,980 cells/mm³), the percentage of the several types of leucocytes, or the platelet count.

Data for total blood volume, for the various components of the clotting mechanism, and for the sedimentation rate are so meager that no generalizations can be made.

Response of the Vaginal Smears of Postmenopausal Women to Single Doses of Estrogens.

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The vaginal smears of postmenopausal women (approximately 150 individuals aged 47 to 90) have been serially examined at periodic intervals following the administration of a single dose of estrogenic material. From the data so obtained, effort will be made to establish correlation between the dose of the estrogenic material, the age of the individual, the intensity of the effect, the duration of the action, and the period of time elapsing between administration and the first appreciable change in the vaginal smear. The general trend of the results is to show that there is an inverse relationship between age and the intensity and duration of the reaction. The interval between administration of the estrogen and the first perceptible change in the vaginal smear varied widely from subject to subject and could not be significantly correlated with the age of the patient.

Histochemical Enzymatic Alterations Revealed by Tetrazolium in Hypertensive Kidneys from Man and Animals and Their Relation to Renal Vem Mechanisms.

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Our studies have disclosed a specific derangement in metabolism of the renal vasoexcitor, VEM, in experimental renal and human essential hypertension. This disturbance consists in loss of the normal capacity of the kidney to restrict formation of VEM to anaerobiosis. The possibility was entertained that this derangement in VEM metabolism might be related to some type of enzymatic disturbance in the renal tubule. Although measurements of oxygen consumption by conventional microrespiratory methods show no difference between normal and hypertensive kidneys, the histochemical reagent 2, 3, 5-triphenyl tetrazolium chloride (TTC) proved to be a useful tool in the investigation of this hypothesis. This reagent has the property of acting as hydrogen acceptor for certain intracellular enzymes, including dehydrogenases. Upon reduction, TTC is converted into a deep red insoluble compound and deposited intracellularly, presumably at the site of enzymatic reduction. It thus provides an index not only of the extent of enzyme activity but also of the distribution pattern of enzymes within the cells.

Viable slices of normal renal cortex (animals, man) show on incubation with TTC, a characteristic distribution pattern of the insoluble reduction product. Concentration is greatest in the proximal convoluted tubules where TTC deposits diffusely throughout the cytoplasm as fine, dust-like granules. Kidney biopsies in renal hypertension (dogs, rats) and essential hypertension in man show strikingly distorted TTC patterns, the TTC being irregularly distributed within the cell as coarse needles and plaques, and often occurring extracellularly as well.

The relationship of this renal tubular enzymatic derangement in hypertension to the metabolic disturbance in renal VEM metabolism in hypertension is suggested by the following observation. When normal kidney slices are incubated anaerobically for one hour and then returned to aerobic conditions, the VEM pattern changes to the hypertensive type. VEM is now formed in both oxygen and nitrogen, just as in kidneys of hypertensive animals and man. At the same time, the TTC pattern in the proximal renal tubules is altered to the typical hypertensive type.

In experimental hypertension (rat) induced by desoxycorticosterone, there is no disturbance in renal VEM metabolism nor in the TTC pattern in the kidney. These findings suggest that desoxycorticosterone hypertension operates through other mechanisms.

This constitutes the first demonstration of a cellular, and presumably enzymatic, lesion in a specific segment of the kidney tubules in experimental renal and human essential hypertension. This enzymatic lesion may be related to the associated metabolic defect in renal VEM metabolism in hypertension.

Relation Between Age and Tissue Response to Stimuli.

M. SILBERBERG *and* R. SILBERBERG, *Snodgras Laboratory, Hospital Division, City of St. Louis, and Department of Pathology, Washington University School of Medicine, St. Louis, Missouri.*

A tissue may respond to stimulation with either growth processes or regressive changes, or a combination of both growth and degeneration. Age is one of the factors that determine the susceptibility of a tissue to stimulation by growth-promoting factors as well as by factors producing degenerative changes. While with advancing age of an individual the sensitivity and reactivity of some tissues in-

creases, that of others decreases. The modifying action of age on the response of tissues exerted by such stimuli as hormones, nutritional influences, irradiation, or carcinogenic agents has received increasing attention, particularly in connection with the cancer problem but also regarding non-neoplastic diseases. The significance of the age factor in the reactivity of tissues to some stimuli will be discussed and illustrated on the basis of experimental findings in different tissues, such as the skeleton, the mammary glands, and some endocrines.

Housing Characteristics of the Aging in the United States.

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Discussions of the housing needs and problems of the aging in the United States have thus far suffered from the lack of a factual, overall picture of the existing housing characteristics and living arrangements of the aging, together with any comparisons of the housing circumstances of the aging with those of other age-groups. The absence of such a factual background has made it virtually impossible to quantify the housing needs of the aging for the nation as a whole and has tended to concentrate research in this field on social welfare and medical aspects of housing, with too little attention being given to the economic aspects of the problem.

Special tabulations of data drawn from the Housing Census of 1950 by the Bureau of the Census for analysis by the Division of Housing Research, Housing and Home Finance Agency, may help to remedy this situation. This study, based on preliminary data of a national and four-regional sample of the American population, will analyze the income, gross rent paid, value of dwelling-unit occupied, condition of plumbing, number of persons per room, number of persons in the household, and number of rooms occupied, by non-farm households headed by persons of various ages (including one-person households). The age of the heads of households will be grouped as follows: 15-19, 20-24, 25-29, 30-44, 45-54, 55-64, 65-69, 70-74, and 75 and over. These households will further be subdivided by tenure, sex, and race. This survey will not cover the living arrangements of aged persons residing as dependents in families headed by younger persons. The number of such dependent aged persons can, however, be estimated as a result of this study. It is hoped that the study will do much to give dimensions to any further investigations of the housing needs of the aging.

Electrocardiographic Age Trends in Young Men and Middle-Aged Men.

E. SIMONSON *and* A. KEYS, *Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis, Minnesota.*

A quantitative analysis was made of 34 electrocardiographic items in two groups of clinically healthy, white collar men: 157 from 17 to 25 years old and 233 from 45 to 55. There were significant differences between the two groups in most items, the older men tending in the direction of deterioration. In middle age there was an average decrease in all voltages, especially of the T wave, slower conduction from auricle to ventricle, and a relative preponderance of the left over the right ventricle, although blood pressures were identical in the two groups.

Special analyses on relative and absolute obesity showed an effect of obesity on the electrocardiogram and this effect was much larger in the middle-aged men than in the younger men. These trends are interpreted as indicative of degenerative myocardial changes even though there were neither clinical abnormalities nor complaints. The data emphasize the need for precise definition of normality. For clinical electrocardiography, standards for different ages are required in order to discern true deviations from normal or average expectations. Fiducial tables for this purpose will be presented.

When Do the First Mental and Physical Symptoms of Old Age Appear?*

J. G. SLEESWIJK, *32 Frankenstraat, The Hague, Holland.*

The Social Consequences of Aging in the Netherlands.

J. G. SLEESWIJK, *32 Frankenstraat, The Hague, Holland.*

The social side of the aging problem in the Netherlands has in principle no other aspect than in the other civilized countries in general. The following items, however, have to be considered:

1. The Netherlands has the highest birth-rate and the lowest mortality in Europe.

2. With the rapid growth of the population, the number of people 65 years and older is equally increasing. Life expection for the period 1947 to 1949 was: men 69.4, women 71.5. In another twenty years the number of old people is estimated at 1,120,000 or three times as many as at the beginning of this cen-

tury, and about 10 per cent of the then expected total population, which involves a growing burden for the productive part of the people.

3. The loss of the East-Indies has contributed to an over-population. Other consequences of World War II are housing-shortage and poor economic prospects. In fact a Gallup-poll showed that 25 per cent of the population wants and has to emigrate. Emigrants are generally younger people which will consequently amount to a further percentage increase of older inhabitants remaining in the country. A recent report on 1,852 old people at the Hague receiving relief from the municipality and living in private quarters showed that only two-thirds of them enjoy a warm meal daily.

There is little prejudice against employing older workers in the Netherlands. The Philips industrial concern, for instance, has so far had good experience with laborers aged 45 to 64; they are more conscientious and cause less accidents.

There is a National Committee for the care of the older people preparing a report on the whole problem, i.e., social insurance, housing, medical care for chronic diseases, and invalidism, counselling centers, and cultural activities (clubs, hobbies, etc.).

Aging Changes in the Vascular Pattern of the Thymus of the Mouse.

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Changes in the vascular pattern which occur during the life history of the thymus and with its replacement by adipose tissue in involution have been studied in the mouse because its thymus is relatively simple and slightly lobulated. The distribution of the thymic blood vessels has been studied in cleared whole mounts of singly and doubly injected thymuses and by projection of serial sections. In the old thymus, the shortened and wider cortical capillaries correspond in position to those of the juxtamedullary zone in the young. With aging the larger arteries and veins become tortuous and shortened. The capillaries around subcapsular adipose cells either on the surface of the lobules or at the edges of the lobes are continuous with those of the cortex. As the development of intrathymic adipose tissue becomes more extensive, large lobules of adipose tissue are formed; the arteries, veins, and capillaries of the replaced thymus are then the vessels of the adipose tissue.

Attempt to Induce Atherosclerosis in Aged Hamsters by Cholesterol Feeding.

J. W. H. SMITH, *Department of Zoological Sciences, University of Oklahoma, Norman, Oklahoma.*

Ten hamsters, aged 20 to 22 months at sacrifice, were fed ad lib a baked mixture of ground Purina dog chow checkers, Crisco, and cholesterol (Cholesterin Merck) for 122 days. The daily individual cholesterol intake ranged from 150 to 200 mg. Autopsy revealed a large whitish liver and increased perivisceral fat in each animal, but there was no evidence of gross atherosclerosis. Microscopic examination showed marked fatty dystrophy of the liver without regeneration and slight aortic intimal lipophage development without other reaction. Heart and kidneys were normal. Ten additional hamsters, aged 21 to 24 months at sacrifice, were fed Purina dog chow checkers for 122 days; no gross or microscopic abnormalities were revealed by autopsy. Both groups were given about 3 gm. green vegetables per week per animal.

Comparison of Lengths of Behavioral Estrus Between Young and Older Female Hamsters (Cricetus auratus, Waterhouse).

A. L. SODERWALL *and* G. K. ARMEN, JR., *Department of Biology, University of Oregon, Eugene, Oregon.*

In line with a broader study of the induction of estrus in ovariectomized female hamsters, one aspect which was available for observations was the comparison of such induced estruses between two age-groups. One group included a total of 87 females of 3 to 8 months age; the other group of 72 females were 8 to 14 months old. Two procedures involved the administration of female sex hormones estradiol-benzoate and progesterone (both in oil) and estradiol-benzoate in oil followed by implantation of crystalline progesterone.

The total results of such administrations revealed a tendency of the average lengths of heat to favor a slightly longer duration in the older animals. With established injections of two 50 I. U. estrogen with a 24 hour interval, followed by 0.2 mg. progesterone, the average length for the younger group was 10.9 hours, for the older group 11.9 hours.

Following similar 100 I.U. conditioning injections of estrogen with an implant of progesterone of 0.1 mg. (earlier established as effective as 0.22 mg. progesterone in oil), the average length for the older

group was 12.6 hours, for the younger, 12.3 hours.

Sensitivities to hormone stimulations have been shown by others, e.g., Wilson and Young (1940) to be lower in younger than older guinea pigs.

Aging of the Golgi Apparatus in Nerve Cells.*

J. M. Sosa, *J. S. Jackson 1015, Montevideo, Uruguay.*

Aging of Neurofibrils.*

J. M. Sosa, *J. S. Jackson 1015, Montevideo, Uruguay.*

Studies in Survival, Population Erosion, and Population Vigor of Bacteria.

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Population erosion, or a slow step-like retrogression and final death of serial culture populations of bacteria under a continuous exposure to unfavorable conditions (high temperature), has been repeatedly demonstrated.

Population survival, vigor, and adaptation, may be induced under conditions of rhythmic or interval exposure of the same temperature.

The possible meaningfulness of these observations in formulating a biologic principle, applicable to populations of higher species, is discussed.

A Theory of the Mechanism of Action of Adrenocorticotrophic Hormone (ACTH) in Intractable Asthma.

A. J. Stanley, M. R. Shetlar, G. S. Bozalis, D. H. Huff, V. D. Cushing, R. Annadown, *and* L. Cawley, *The Departments of Physiology, Biochemistry, and Medicine, the University of Oklahoma School of Medicine and the Oklahoma Medical Research Foundation, Oklahoma City, Oklahoma.*

During the course of treatment of patients in status asthmaticus with adrenocorticotrophic hormone (ACTH) the following facts are observed:

1. There is cessation of rales within the chest in 48 to 96 hours.
2. The production of sputum is markedly decreased.
3. The sputum becomes less viscous and purulence often disappears.
4. The reaction of the sputum usually changes from pH 8-7.5 to 6.5-6.0 during the course of treatment. Maximal vital capacity for the patient is associated with these changes.
5. Pepsinogen content of the urine increases 2 to 4 times the pre-treatment level.
6. Proteolytic enzymes can be demonstrated in the deep pulmonary mucus during ACTH therapy.
7. Pepsin has a mucolytic action on the acid sputum in vitro. Hyaluronidase and trypsin are without effect.

Conclusions: ACTH causes a shift in the reaction of pulmonary mucus in status asthmaticus from the alkaline to the acid side and causes the release of mucolytic enzymes which either lyse the tenacious mucus and permit its reabsorption by the blood or inhibit its formation.

Thyroid Function and Disease in Aged Humans.

P. Starr, *Department of Medicine, University of Southern California School of Medicine, Los Angeles, California.*

A preliminary review of the subject indicates that basal metabolism at 80 years of age is only 10 per cent below that of 40 years of age, and that protein-bound iodine measurements, both from the Thyroid Clinic of the Los Angeles County General Hospital and from the University Hospital of the University of California, San Francisco, have shown no significant deviation from the values found in young adults. In addition, determination of the accumulation gradient of I^{131} by Perlmutter and Riggs also shows no significant variation from 40 to 80 years of age. Furthermore, the measurements of thyroid function by the synthesis of thyroxin as determined by I^{131}, according to the method of Morton, showed no significant change in those over 60 years of age as compared with those below 40 years of age.

A pertinent problem as yet unanswerable is analagous to our main subject, namely, is chronic partial, i.e., not myxoedematous, hypothyroidism of etiologic importance in the production of degenerative changes in mesenchymal tissues? Suffice it to say at this time that what little evidence there is would point to a closer correlation of such changes with longevity than with basal hypothyroidism.

The distinction between hypometabolism, which

may be beneficial to health in old age, indicating a lesser degree of stress, will be discussed and differentiated from hypothyroidism, which, although lowering oxygen requirement, causes chemical pathology. Conversely the value of administering desiccated thyroid to correct chemical pathology will be discussed in relation to increasing stress and its ability in excess to induce chemical pathology.

Grief Reactions in Later Life.

K. STERN, G. M. WILLIAMS, *and* M. PRADOS, *Allan Memorial Institute, 1025 Pine, West, Montreal 2, Canada.*

The Gerontologic Unit, within the Department of Psychiatry at McGill University, has been running an Old Age Counselling Service in association with the welfare organization for the past five years. The present paper is a preliminary description of reactions of mourning and grief in the aged. The most frequent situation is that of the death of a marital partner. There is a tendency in the bereaved person for somatic disease either to be precipitated or accentuated at the time of the bereavement. There is a trend towards self-isolation and towards hostility against relatives, friends, or neighbors. Moreover, there is a tendency to change the image of the deceased so that particular features are entirely blotted out and the person is idealized.

Gerontologic Implications of Fibrosarcoma Susceptibility in Mice.

L. C. STRONG, *Department of Anatomy, Yale University School of Medicine, New Haven, Connecticut.*

The latent period and the survival time of mice developing methylcholanthrene induced fibrosarcomas are influenced by litter seriation. A sex differential in reference to the above characteristics of neoplasias also shows variations in mice of subsequent litters to the same parents. The offspring of advanced litters do not duplicate completely the characteristics of chemically induced fibrosarcomas possessed by their parents but show similar trends to mice of advanced litters.

Thus a changing trend during the life span of the individual is observed and that this trend is cumulative in successive generations predicates transmission from parent to offspring by some means other than through the genes. Some evidence indicates cytoplasmic inheritance but this conclusion may not be the final one. The experiment indicates that the effects of the aging of protoplasm may be transmitted to the offspring and influence or determine the characteristics of cancer in the offspring. Thus the onset of cancer is not only the resultant of the aging process of the individual but may also be due to the aging process of the parents, or even of the species to which the individual belongs.

Histochemical Studies of Autonomic Ganglion Cells in Relation to Aging in the Dog.

N. M. SULKIN, *Department of Anatomy, St. Louis University School of Medicine, St. Louis, Missouri.*

The histochemistry of autonomic ganglion cells in the dog are being studied in relation to their alterations during aging. Comparisons are being made between the histochemistry of autonomic ganglion cells and sensory ganglion cells in the various age groups and between the autonomic ganglion cells in the dog and those of man.

Most of the autonomic ganglion cells contain periodic acid—Schiff positive materials in the cytoplasm. In the young and adult dogs, treatment of the sections with diastase results in the loss of the staining reaction indicating that the reaction is due to the presence of glycogen. In the senile dog, such treatment does not result in the loss of stainability indicating the presence of sulfur—conjugated mucoproteins.

Studies of ascorbic acid indicate that in very young dogs there is little of this vitamin in the autonomic ganglion cells but that after 6 weeks of age there are increasing amounts of this substance in the cells. The amount remains rather constant throughout adulthood, then sharply decreases during senility.

Pigments are found in the ganglion cells of senile dogs. Their histochemistry and comparison with pigments found in human ganglion cells will be described.

Observations in alterations of enzyme systems, nucleo-proteins, Golgi apparatus, mitochondria, and lipids will also be described.

The Necessity for Multiple Diagnoses in Geriatric Medicine.— Review of 100 Diagnostic Surveys in Private Practice.

F. D. SUTTENFIELD, *1302 18 Street, N.W., Washington, D. C.*

One hundred ambulatory adult patients underwent rather thorough diagnostic surveys in private practice. In a majority of instances, the patient presented a single complaint, principally rheumatic in

nature. The youngest of this group was 43 years, the oldest 84. The average age was 54.6 years. The chief complaint did not necessarily bear upon the most serious disease discovered in the individual.

The author believes that the discoverable multiple diseases in the geriatric patient warrants a thorough diagnostic survey when such patient presents himself with one or more complaints, particularly if there has been no such examination in the past six to twelve months.

Thoroughness in the practice of geriatric medicine is the one tool which the geriatrician always has at hand. That tool is productive proportionally to the discipline of the geriatrician. It often discloses incipient, pre-symptomatic disease; aberrations in physiology leading to disease. It often shortens or modifies the course of treatment, minimizes residua, and is life-saving when malignancy is discovered in situ. In general, that tool, thoroughness, adds years to life and life to years. (Charts to accompany delivery.)

Organized Community Planning for Old Age.

P. W. SWARTZ, *Community Council, Bridgeport, Connecticut.*

This study attempted to obtain information on the question of to what extent American communities are utilizing and applying the present knowledge of gerontology so that it may serve a large proportion of the population.

The investigation covered 155 American community areas encompassing 72.2 per cent of all areas with a total of 75,000 or more. Material was obtained from 45 states and included all sections. The questions dealt with such services and needs as community planning and organization, interpretation and publicity, chief facilities and services that are operating, primary needs, employment opportunities and variations that occur between the normal and defense labor market, the interactions between industry and labor that affect the older person's economic rule, and observable changes that have occurred in community attitudes toward the older person.

The findings emphasized that considerable progress has been made in various parts of the country. A small number of areas have well planned programs with facilities and leadership that promise continued growth. Extremely few community areas are operating programs and services that are on the frontier of knowledge or are substantially experimental.

Reported signs show evidence that business and industrial leaders are becoming more concerned about the need for selective retirement policies but the most pressing need pertains to living arrangements and housing. The study emphasizes that effective programs can best be developed with proper leadership and comprehensive planning. This often entails an overall central committee so that thinking and planning will receive the coordination and direction that sound developments deserve. Undercrystallization in this area is impeding growth and enthusiasm and strong potential that is so marked in many American communities.

Bronchiectasis and Chronic Bronchitis in the Aged.

H. C. SWEET, *Department of Internal Medicine, St. Louis University School of Medicine, 1325 South Grand Boulevard, St. Louis 4, Missouri.*

A discussion of the incidence of bronchiectasis and chronic bronchitis in the older age groups is given, based upon the patients seen in a large chest clinic. The possible modes of pathogenesis and chronic bronchitis in the production of crippling disability in the aged is stressed.

A consideration of therapeutic regimens is presented and results evaluated.

Degenerative Alterations of Renal Vasculature in Humans and Experimental Animals.

P. B. SZANTO, D. NELSON, A. C. IVY, *and* H. POPPER, *The Hektoen Institute for Medical Research of the Cook County Hospital, Chicago, Illinois.*

An attempt was made to correlate dietary alterations of experimental animals with vascular lesions, some of them of the character of arteriosclerosis, and to relate these changes so produced to similar manifestations in human renal lesions. In the study of the latter much emphasis has been given to the juxtaglomerular apparatus. Guinea pigs receiving milk and a protein-rich semi-synthetic diet after six to twelve months developed severe vascular changes such as intima thickening, calcification of the internal elastic membrane, and lipophages in the vasa vasorum of the aorta. The coronary arteries were partially or completely occluded by lipophages resulting in myocardial necrosis.

Kidney, stomach, and skeleton muscle presented extensive metastatic calcification. The outer surface of the kidney was finely granular. Microscopically, calcification of the tubular epithelium and calcium deposits into the lumina of the tubules were found.

The tubules were dilated secondary to the occlusion of their lumina by calcium deposits. The tubular epithelium of the cortex showed partial or complete depletion of alkaline phosphatase. Vascular changes were absent from the kidney. A group of guinea pigs receiving the same diet as described above with addition of 100 mg. of cholesterol presented the same type but more extensive cardiovascular-renal changes.

Golden hamsters placed for six to twelve months on a cholesterol-rich diet presented extensive renal damage; however, the vascular changes in the other organs were less extensive than in guinea pigs. Grossly the kidneys were granular. Microscopically, the hamster kidney revealed partially or completely hyalinized glomeruli. The cortical tubules were partially or completely depleted of alkaline phosphatase.

The kidneys of the experimental animals were subjected to fluorescence microscopic studies in view of previous investigations on human kidneys revealing fluorescent granules in the juxtaglomerular apparatus. These granules were more marked in hypertension without renal lesions, but decreased in severe nephrosclerosis and in chronic glomerulonephritis. They were considered a wear and tear pigment. The human material studied consisted of arterio- and arteriolonephrosclerosis, glomerulonephritis, Kimmelstiel-Wilson's disease, various types of collagen diseases, and amyloid nephrosis. The possible significance of these observations in the problem of hypertension will be discussed.

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Further Observations on Combined Drug Therapy of Parkinson's Disease.

G. M. TANAKA *and* J. C. EDWARDS, *the Division of Gerontology, Washington University, School of Medicine, and the St. Louis City Infirmary, St. Louis, Missouri.*

Fifteen of the original 22 patients (*J. Gerontol.*, 5:388, 1950) were further observed on various combined drug therapy.

Since the patients were in a considerably improved state under the Benadryl-Rabellon Therapy, the effect of the medicines were evaluated by the following: (a) the withdrawal effect, (b) the counteracting of the withdrawal effect, (c) the subjective feelings of the patients, (d) the observations of the nurses, and (e) the effect on certain residual symptoms in each individual patient.

Further improvements were noted in the majority of the 15 patients. The results on the two newer preparations made available for trial in Parkinson's Disease, P-19 (dimethyl amino ethyl alpha, alpha-diphenylpropionate hydrochloride) and MK-02 (Tropine Benzohydryl Ether Methane Sulfonate), will also be presented.

The Application of Social Work Disciplines to Group Work Services in Homes for the Aged.

P. TARRELL, *Golden Age Program, Jewish Community Centers, and* H. SHORE, *Drexel Home for Aged Jews, Chicago, Illinois.*

This paper will deal with the ways in which the Jewish Community of Chicago is attempting to serve those older people whose troubles have left their mark and taken their toll, both physically and mentally.

It will describe a typical older person who is engaged in a struggle which to him is overwhelming and which he cannot resolve through his own resources or those of his immediate family or friends.

While there are a number of different programs provided by the Jewish Community, in this paper we are focusing on how an integrated community program serves the individual in a home for the aged. We will discuss briefly the process of continuing help while the individual is still in the community, during the transition period, before entering the home, and during his initial and ongoing adjustment in the home.

The paper will show in greater detail how the group work program helps him make his adjustment to the home through his involvement in the various activities and programs. It will trace his participation in these programs, how these activities are designed to meet his needs, how he is worked with as an individual and in groups, how the home, through various means including staff conferences, works out methods for dealing more effectively with the individual who presents behavior problems in the home.

Hemodynamics and Plaque Formation in Experimental Atherosclerosis.

A. N. TAYLOR, *Department of Physiology, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.*

As a part of a study on hemodynamics, it was observed that certain regions of the rabbit aorta were more involved in atherosclerotic plaque formation than other regions and that the plaques appeared to be formed in a regular, definite shape. In producing experimental atherosclerosis, one group of rabbits

received a daily base diet of 75 gm. commercial rabbit chow and 0.6 gm. cholesterol in vegetable oil; a second group received the base diet and vegetable oil; and a third group received only the base diet.

At the end of a 100 day test period the serum total cholesterol levels averaged 2000 mg. per cent for the cholesterol treated animals as compared with 60 mg. per cent for the two control groups. The animals were sacrificed, each entire aorta removed, opened, and the plaques' form and distribution noted. The aorta was then divided into four regions, dried to constant weight, the cholesterol extracted from each region, and the amount determined by Sperry's technique.

It was noted that the plaques were early laid down in the aorta in the shape of a delta with the apex pointed downstream and the base about the orifice of a branching vessel. The highest cholesterol content of an aortic sector was in the region in which localized eddy currents would be most likely to occur. This relationship is now being studied by measuring the induced voltages of blood electrolytes moving through a magnetic field and using these measurements to locate the eddy fields within the aorta.

Education for the Older Rural Adult.*

C. C. TAYLOR, *Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.*

Basal Cardiac Output in Young and Middle-Aged Men and Its Relation to Body Composition.

H. L. TAYLOR, J. BROZEK, *and* A. KEYS, *Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis, Minnesota.*

Basal cardiac outputs were determined in 26 college students whose ages ranged from 19 to 26 and in 56 business men, 46 to 55 years of age, all clinically healthy in detailed examinations. The acetylene cardiac output data were corrected to direct Fick levels by a regression equation obtained from 18 simultaneous estimations of the cardiac output by the direct Fick (catheter) and the acetylene methods. This equation predicted the direct Fick values from the acetylene cardiac outputs with a standard error of estimate of 0.4 liters/minute. The average cardiac output of the young men was 5.92 liters/minute with a cardiac index of 3.08 liters /m.^{2}, (S.E.=± 0.20), and that of the middle aged group was 4.66 liters/minute with a cardiac index of 2.43 (S.E.= ±0.05). Body fat was estimated by densitometry, and cardiac outputs per kilogram of fat-free body weight were found to average 0.927, SE = ±0.026 for the young men and 0.817, SE = ±0.016 for the older men.

Geriatrics: General Considerations.

M. W. THEWLIS, *Thewlis Clinic, Wakefield, Rhode Island.*

There are many problems facing us in caring for the older population. There are less nurses and less hospital beds. At the same time there is an increase in chronic illness, especially since people live longer. The use of antibiotic substances prolongs life by saving people who formerly died from infections.

Perhaps the best approach to the problem is to keep the aged population ambulatory as much as possible. This can be accomplished by better hygiene, improved nutrition, and adequate housing.

The physician can keep these patients active and working by treating them in his office. Once they get into an institution they are likely to remain there. Already there are postgraduate courses for physicians in practical office procedures. More efficiency will enable the physician to treat these patients in his office or in their homes, thus relieve the congestion in institutions. Merely instructing the patients on proper nutrition would help them to ward off illnesses. It is amazing how much better many older people feel when they have an adequate intake of ascorbic acid, calcium, and proteins.

The Risk of Urologic Surgery in Men Past 80.

G. J. THOMPSON, *Mayo Clinic, Rochester, Minnesota.*

The treatment of genito-urinary tract diseases occurring in men in the ninth and tenth decades of life is often deferred or carried on in an ultra conservative manner because of a feeling that surgical treatment carries a prohibitive risk. Often the nonoperative treatment, as a matter of fact, leads to severe complications and deterioration which causes a higher mortality rate than surgery.

An analysis of a large series of cases will be presented, outlining the incidence of complicating cardiovascular and other disease occurring in conjunction with the urologic disorder. Principles employed in evaluating the risk of surgical procedure will be discussed. Finally the results of operations in men of this age group will be given with particular emphasis on methods of minimizing postoperative complications.

Integration of the Geriatrics Program in the General Hospital.*

J. D. THOMPSON, *Montefiore Hospital, Gun Hill Road, near Jerome Avenue, New York 67, New York.*

Presenile Cortical Atrophy.

L. J. THOMPSON *and* G. MUNDORF, *the Department of Psychiatry and Neurology, Bowman Gray School of Medicine, Wake Forest College, Winston-Salem, North Carolina.*

Brain atrophy, with or without cerebral arteriosclerosis, is one of the most important factors in the disability of people beyond 60 years of age. When such conditions develop earlier in life, the results are even more tragic and the causes are less well understood.

Pick's disease and Alzheimer's disease are examples of presenile cortical atrophy but we know practically nothing about the disease. There are other cases of cortical atrophy occurring below the age of 60 that do not fit into the above specifically named categories.

With the increasing use of air injections or encephalograms, particularly before prefrontal lobotomy operations, more and more of these cases are coming to light. In this paper we want to present a general clinical summary of several cases of cortical atrophy that have been discovered in our hospital in the past four years. It is too early to have any pathologic reports but the clinical studies, including x-rays and detailed psychologic tests, can be presented.

Particular attention is given to those cases that do not fit into the Alzheimer or Pick group. Possible causes, such as neuronal, lipidosis, other metabolic disturbances and hereditary factors will be considered.

Gerontologic Applications of ACTH and Cortisone.

W. O. THOMPSON, *700 North Michigan Avenue, Chicago 11, Illinois.*

This paper will include the following:

1. A brief discussion of the physiologic effects of ACTH and cortisone.

2. A brief outline of the functions of the adrenal cortex and the manner in which they are influenced by ACTH and cortisone.

3. Clinical applications of ACTH and cortisone to patients over 45 years of age, with special reference to rheumatoid arthritis and related diseases, acute rheumatic fever, allergic asthma and other allergic phenomena, gout, the leukemias, lymphosarcoma, Hodgkin's disease, skin disorders, and Addison's disease.

Response of the Aged to Stress.

A. P. THOMSON, *Department of Medicine, University of Birmingham, Birmingham 15, England.*

Routine bio-chemical investigations of elderly patients in the wards of a general hospital and infirmary revealed no marked departures from the accepted normals with one exception—the serum sodium. Estimations in 50 elderly patients (without illness known to affect the serum sodium level, such as congestive heart failure, renal disease, or febrile states) showed that the level of sodium was generally low and in half the total cases well below the minimum normal.

Measurable stress was then imposed by sudden restriction of sodium in the diet. The already low level of sodium in the blood fell still further and the excretion of sodium in the urine remained consistently above the amount contained in the diet. At the end of two or three weeks the level of sodium excretion might fall still further to a level less than that taken by mouth. In other words, the elderly adapted themselves to this stress slowly and generally inefficiently, but in a few cases efficient adaptation was carried out after delay.

A similar test in young adults showed a drop of the sodium excretion within forty-eight hours to a level often below that taken by mouth, and the value of the serum sodium was not affected.

As this difference might be related to the state of the adrenal cortex, the insulin sensitivity of the old was investigated and found to be abnormal. Adrenalin injections in the aged, however, affected the eosinophil counts to the same degree as in the young.

The effect of stress to surgical operations is now under observation. We have confirmed the observation that the excretion of 17-ketosteroids in the old is low and are collecting information about the excretion of gonadotrophins.

Aging of the Human Epidermis as Reflected in Dimensional Changes and Mitotic Ratios.

J. M. THURINGER *and* A. A. KATZBERG, *Department of Histology, University of Oklahoma School of Medicine, Oklahoma City, Oklahoma.*

The mitotic index for each of 45 specimens of human skin, abdominal, of various ages (2 days to 77 years) was obtained by counting the cells undergoing mitosis in the basal and squamous cell layers of the epidermis. Projection tracings of uniform magnification served as patterns from which the actual measurements and computations were made with the aid of a planograph and a cartometer.

From these measurements we determined: a) the epidermal volume per square millimeter of skin surface; b) the thickness of the epidermis; c) the cell population per square millimeter of skin surface; and d) the areas of the stratum disjunctum and the stratum basalis.

Averages calculated for the various age groups yielded the following information: 1) diminution in the aggregate thickness of the epidermis with advancing age; 2) diminution in the volume of the epidermis per square millimeter surface; 3) a decrease in the total cell population per square millimeter surface with age; 4) a decrease in the ratio of the areas of the stratum basalis over the stratum disjunctum with age due to the gradual flattening of the rété pattern; 5) a decrease in the ratio of the cell population per square millimeter surface over the corresponding mitotic count with age.

Pastoral Counseling.*

P. L. TILDEN, *Department of Pastoral Service, National Council of Churches of Christ in the U. S. A., New York, New York.*

A Nursing Service for the Aged and Aging.

H. M. TORROP, *National Association for Practical Nurse Education, 654 Madison Avenue, New York 21, New York.*

A major concern of the National Association for Practical Nurse Education is the necessity of supplying a corps of well prepared nurses for the care of patients suffering from long time illnesses among whom we find many of our aging population.

During the past ten years approved schools for practical nurses in the U.S.A. have increased from 12 to 130. These one year programs turn out remarkably efficient bed side nurses. The primary objective of these schools is to prepare women from 18 to 50 years of age to give expert nursing care to chronic and convalescent patients in hospitals and at home and to assist the professional nurse in the care of the acutely ill. Bed side nursing is for them a full time career.

Many more schools and thousands of additional students and graduates are needed. The utmost satisfaction is expressed by the hospitals and patients employing these trained practical nurses.

The association aids in developing schools of practical nursing, in accrediting superior schools, in preparing teaching material for the schools, and in serving as a National headquarters of information on practical nursing.

Acute Inflammation of the Aging Heart.

E. F. TRAUT, J. B. CARTER, *and* S. H. GUMBINER, *Department of Clinical Medicine, University of Illinois, Chicago, Illinois.*

Acute inflammation of the heart is a respected disease of children, both as a manifestation and sequel of rheumatic fever. Acute carditis is less frequently suspected on encountering febrile conditions in the degenerative years.

We arbitrarily took 45 years as opening a period marked by the clinical prominence of degenerative processes. Patients over 45 years of age comprised more than one-third of the instances of acute endocarditis in almost 14,000 autopsies performed at Cook County Hospital. Degenerative changes accounted for the cardiac localization of infection in some instances. The strong predisposing influence of rheumatic fever deformities was confirmed. Surgical procedures for such old age diseases as prostatic hypertrophy were important inciting causes. Acute endocarditis was usually mistaken for other diseases more commonly suspected in old age.

Aging and Stature.

M. TROTTER *and* G. GLESER, *Department of Anatomy, Washington University School of Medicine, St. Louis, Missouri.*

The rate of change in stature after maturity could best be determined by successive measurements of the same individuals. Probably because the period of physical decline is very long such studies have not been reported. Cross-sectional studies of samples of mature individuals of successive age groups taken at the same time usually show a decrement in stature with age. It is known that at least two factors are contributory: the aging factor, resulting

from change in the curves of the vertebral column, etc., and the secular factor, the effect of environment, etc., on the maximum stature of succeeding generations. The high correlation between length of the long bones and stature of the individual provides the means whereby the consequences of these two factors can be separated.

Anthropometric measurements of a series of Negro and white cadavers of both sexes and of known ages were made shortly after death. Following maceration, their skeletons became a part of the Terry Anatomical Collection. Certain statistical methods have been applied utilizing the data on stature, length of long bones, and age. The rate of decline in stature with age (from 30 to 90 years) was found to be consistent in both sexes of both races and amounts to an estimate of 1.2 cm. per twenty years.

An Analysis of the Symptoms of Hyperthyroidism in Women After the Age of 50.

E. TRUCCO, M. GAMBIN, J. D. CIRIO, *and* E. B. DEL CASTILLO, *Sala 16, Policlinico Rivadavia, Buenos Aires, Argentina.*

The investigation included 316 women with hyperthyroidism; 36 of these patients, or 11.07 per cent, were 50 years of age or older. The prevalence of toxic adenoma in female patients over the age of 50 is demonstrated by the fact that 22 of the 36 patients suffered from this type of hyperthyroidism, whereas 12 of the patients had exophthalmic goiter.

All the patients had the three cardinal signs necessary for the establishment of the diagnosis of a hyperthyroid syndrome, namely loss of weight, elevated B.M.R., and cardiovascular disturbances. The weight loss and the elevation of B.M.R. were always moderate, whereas the circulatory disturbances occassionally were very striking.

Neuromuscular manifestations were present in 100 per cent of the patients and included asthenia, muscular atrophies, loss of strength, and fatigability. There were marked changes in the sexual hair. Ocular manifestations in cases of exophthalmic goiter were very mild.

The more striking differences between the manifestations of hyperthyroidism in older women as compared with the signs in younger patients are the moderate changes in B.M.R. and in weight and the predominance of neuromuscular symptoms in the aged.

Retirement Practices in Business and Industry.

J. TUCKMAN *and* I. LORGE, *Teachers College, Columbia University, New York, New York.*

A survey of the 113 largest corporations in the United States was made to determine current practices in business and industry pertaining to the retirement of employees. These corporations included 39 industrials, 16 utilities, 16 banks, 21 insurance companies, and 21 railroads.

The survey, which was conducted by questionnaire, sought information in three broad areas. The first part of the questionnaire was concerned with pension plans, the second part attempted to obtain information on the psychologic reactions of older employees, and the third part sought information on the type and extent of assistance given by corporations to help prepare employees for the variety of problems they may have to face on retirement.

A 62 per cent return was received, representing 70 corporations employing 2.75 million workers. The replies, which are suggestive of contemporary practice, indicate that while most interest is centered around pensions, there is a growing concern on the part of business and industry in the problems of retirement and adjustment. Almost half of the respondents have some kind of pre-retirement program in operation or are conscious of the need to institute such a program. These companies are meeting the problems of preparation for retirement at different levels and with varying degrees of effectiveness.

The Effect of Aging in Elastin and Collagen Fibres: Structural and Chemical Studies.

R. E. TUNBRIDGE, W. T. ASTBURY, R. REED, D. A. HALL, *and* R. N. TATTERSALL, *Department of Medicine, General Infirmary, Leeds, England.*

Structural—Specimens of skin, tendon, and aorta from varying sites and age groups were obtained either by biopsy or at autopsy. The tissues were stored in physiologic saline at —15 C. Immediately prior to use the specimen was divided, half being taken for study with the electron microscope and half fixed in formal saline for standard histologic preparation and staining.

Electron microscope studies have confirmed the work of Wolpers and Gross concerning the essential characters of collagen and elastin fibres. The conclusions based upon standard histologic techniques have shown no close correlation to the findings with

the electron microscope. Many specimens reported by previous authorities as containing excessive amounts of elastic tissue were found to contain no such excess but aggregations of altered collagen. The structural differences between foetal, adult, and senile samples of the tissues named are reported.

Chemical — Previous workers, Stein and Miller, Bowes and Kenton, have attempted to establish the chemical identity of collagen and elastin fibres. The standard methods for separating collagen and elastin fibres have been employed and the tissues so treated studied in parallel with electron microscope examination. The action of various chemicals and physical processes upon accepted pure specimens of collagen and elastin fibres were tested but little correlation was observed between the chemical findings and structural studies, whether obtained by the ordinary staining methods or with the electron microscope. Partition chromatography was utilized in the analysis of the breakdown products.

The Medical and Social Problems of an Aging Population.

R. E. TUNBRIDGE *and* E. C. WARREN, *Department of Medicine, University of Leeds, Leeds, England.*

By 1980 between one-fifth and one-sixth of the population of Great Britain will be of pensionable age, that is to say, men over 65 years and women over 60 years of age. Furthermore, the pensionable group will constitute more than one-quarter of the voting public. The social, political, and economic implications are discussed. Evidence is submitted that three score years and ten is a critical age whereafter serious physical and mental decline is more apt to occur. The importance of minor medical maladies and social factors in hastening a decline are discussed. Although sickness in the elderly does not exhibit entirely new disease forms, the reaction of the elderly patient to sickness does provide many medical and social problems, division between the latter aspects being often impossible.

Planning for the Aged in Great Britain.

R. E. TUNBRIDGE, *Department of Medicine, University of Leeds, Leeds, England.*

A brief summary of the working of the National Health Service Act 1946 in Great Britain to-day is given. In particular the contribution of the Act to the care of the elderly sick and infirm is stressed. The interrelationship of National and Local Government of the Voluntary Services is indicated and regional schemes are reported to illustrate the ideas and achievements of recent years.

The Effect of Different Types of Breakfasts on the Blood Sugar Level of Men Past 60 Years of Age, and the Effect of Age on the Fasting Blood Sugar Level, and on Sugar Tolerance.

W. W. TUTTLE, *Department of Physiology, College of Medicine, State University of Iowa, Iowa City, Iowa.*

Data were collected from a group of 8 men past 60 years of age, relative to various breakfast regimens on the blood sugar level following breakfast. The data show that where adequate amounts of protein are contained in breakfast, an increase in the amount of carbohydrate results in a higher and longer maintained blood sugar level following breakfast. The data also show that a cereal and milk breakfast containing one-fourth the daily caloric requirement, as compared to a like breakfast of bacon, and egg, resulted in a higher and longer maintained blood sugar level. This result is no doubt due to the fact that the cereal breakfast contained more carbohydrate than the bacon and egg breakfast.

Data were also collected relative to the fasting levels, and the sugar tolerance from two groups of men, one group ranging in age from 20 to 35 years and the other from 60 to 84 years. A comparison of the fasting blood sugar levels of the two groups showed that the level for the older group was significantly higher than for the younger group. A comparison of the blood sugar levels of the two groups following the same breakfast showed that the per cent blood sugar rise above the fasting level, for a period of three and a half hours was the same for both groups.

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Experiences in Intensive Home Care of the Chronically Ill Geriatric Patient.

L. UDELL, *Intensive Home Care Plan Administered by Visiting Nurse Society of Philadelphia, 4540 Cottman Street, Philadelphia 35, Pennsylvania.*

The experiment described here was developed in response to organized community demand to determine whether medical and supportive services for chronically ill patients in their own homes and under the care of their own visiting physician when developed intensively would lead to maximum improvement (physically, emotionally, socially) at less expense than through hospital and institutional care. The undertaking in operation for two years in one section (population 325,000) of a large eastern city

has cared for 91 patients, half of whom have been over 65 years of age. Services have been offered on a visiting basis at a frequency determined by the need and have been coordinated by a community public health nursing association. These services include medical, nursing, physical therapy, occupational therapy, nutrition, speech training, and housekeeping care, supported by social case work and mental health consultation. The team approach has been used throughout with careful admission review and regular progress conferences. Referrals have come from all hospitals and a large number of the private physicians in the area.

Consideration of the organization pattern, interagency relationship, physician-agency relationship, physician-patient relationship, and the expense involved in promotion and operation lead to the conclusion that such a plan can be repeated in a wide variety of communities.

Review of progress made by patients with a broad range of diagnoses and observation of the favorable changes made in family life suggest this program as one approach to the problem of care for older persons with chronic illness who wish to remain at home. In our experience those who display readiness to cooperate in intensive care demonstrate improvement in conditions formerly believed to be static or hopeless.

Modern Approaches to the Pharmacotherapy of Neuromuscular Disorders.

K. R. UNNA *and* V. G. VERNIER, *Department of Pharmacology, University of Illinois College of Medicine, Chicago 12, Illinois.*

Disorders of the motor system accompany diseases of advancing years with greater frequency than at other stages of life. Therapy at present is symptomatic and almost entirely empirical.

New approaches to more effective pharmacotherapy of these disorders are based on the great advances in neurophysiology during the last two decades and the elaboration of methods to localize the site of action of drugs in the central nervous system. Our understanding of the cerebral cortex, of the brain stem, and of the spinal cord, and particularly of the functions of these segments and their interconnected systems, has been greatly increased. New concepts of the pattern of organization of the extrapyramidal system are undoubtedly among the most significant recent advances of neurophysiology. Adaptation of numerous new methods for neuropharmacologic purposes permits the investigation of new and old drugs for their site and mode of action in the central nervous system.

Therapeutic research of this type provides the basis and rationale for more effective drug therapy. Research efforts of this kind carry a justifiable hope for therapeutic progress.

V

Problems in Employment as Related to the Psychology of Aging.

S. H. VANN, *White-Douglas Home for Elderly Women, 1251 South 22 Street, Birmingham 5, Alabama.*

A discussion is presented of the various projects initiated in a home for elderly women which have made for their better adjustment. A yearly bazaar is held, giving the elderly women something to occupy their time and a feeling of usefulness as well as providing spending money for them. Discussions are held on the qualifications of political candidates and the women are encouraged to vote. In order to broaden our usefulness in the community and help in reaching lonely old people, a Christmas tea was held to which 200 elderly women guests were invited. Stemming for this we have planned to form the Birmingham Senior Citizens Club to which all old people who want to be interested in current events, art, and music will be welcomed.

To create a spirit of belonging and a feeling that someone cares how they look, the elderly women are expected to look their best at all times. Events are made of our meals and there are always pretty flowers on the tables.

We believe that our numerous activities have been a factor in maintaining personality integration and have been of the greatest assistance in promoting personal adjustment and physical health.

Serum Glucoproteins in Old Age.

G. VANZETTI, G. MARS, *and* G. FORMIGA-ORAZI, *Laboratorio di Richerche Biologiche, Ospedale Maggiore di Milano, Milan, Italy.*

The investigation included determinations in 50 normal adults and in 50 healthy old subjects of total serum proteins and of the protein fractions obtained by Pillemer and Hutchinson's methanol fractionation method. The protein fractions were tested for nitrogen content (microkjeldahl method) and for bound carbohydrate (method of Shetlar and coworkers).

In the older individuals an increase of the globulin fraction was usually found with a decrease in the

albumin fraction and in the albumin/globulin ratio. The carbohydrate of the globulin fraction increased together with the globulin content; the carbohydrate/nitrogen ratio of this fraction was relatively constant in almost all cases. A relative increase in the carbohydrate content of the albumin fraction with a marked increase in the carbohydrate/nitrogen ratio was observed in the old subjects.

The significance of these findings is discussed.

Limits Between the Normal and the Pathologic State in the Senescent Cardiovascular System.*

F. VEGA DIAZ, *Department of Geriatrics and Experimental Cardiology, Instituto de Patología Médica, Hospital General, Madrid, Spain.*

Syncopes of Cardiovascular Origin in Old Age.

F. VEGA DIAZ, *Department of Geriatrics and Experimental Cardiology, Instituto de Patología Médica, Hospital General, Madrid, Spain.*

The classification of the syncopes of cardiovascular origin as introduced by the author in 1948 is discussed and it is emphasized that the anatomic and physiologic conditions characteristic of the various age groups are responsible for the difference in frequency of the various types of syncopes in the different age periods. Thus the psychogenic vasodepressor type of syncope, so frequently found in childhood and youth, is extremely rare in old age. In old age, on the other hand, those forms of syncope prevail which are conditioned by cerebral arteriosclerosis and cardiac decompensation. Because of the presence of cerebral arteriosclerosis syncopes may occur in old subjects even while the individuals are lying down, for instance as a consequence of gastrointestinal hemorrhages which in younger persons would be tolerated in a standing position without fainting. The existence of cerebral arteriosclerosis in the aged likewise intensifies the tendency to syncopes of anoxemic and hypocapnic etiology.

Syncopes of cardiac origin, as for example the syncopal manifestations of Stoke-Adam's disease, of artrio-ventricular block and ventricular fibrillation are also more frequent and pronounced in the aged.

In addition a number of other types of syncopes and the special characteristics pertaining to such syncopes in elderly individuals will be reported.

William Shakespeare. Gerontologist.

W. E. VEST, *First Huntington National Bank Building, Huntington 1, West Virginia.*

It is not generally appreciated that Shakespeare's knowledge of all phases of life included an excellent understanding of medicine as it was known and practiced in his day and that he was a pioneer in physiology as well. This is especially true of the circulation and of the aging process. Quotations are presented to demonstrate the poet's knowledge of the phenomena of aging and senescence, and his descriptions of these processes are discussed, especially as portrayed in Falstaff and King Lear.

Group Work Activities With Emphasis on Club Programming.

F. E. VICKERY, *Senior Recreation Project, San Francisco, California.*

Since work with older people in a group-work setting is in its experimental and formative stages the basic philosophy underlying those programs must be clearly stated. Older people maintain their personal dignity, feelings of adequacy and usefulness to themselves and their communities not by being participants in activities planned for them by sponsoring agencies but by being given the opportunity to initiate and plan their own activities and to organize and administer their clubs under the direction of trained leaders.

In discussing club programs we shall be describing a process of dynamic inter-personal relations among the members, as well as the culmination of this process in specific activities.

How diversified these activities will be in any group will be determined by a number of factors—(1) by the skill of the leader in discovering the needs and interests of the club members; (2) by the strength of the sub-groups and how their interests are channeled into the whole; (3) by the stimulating or restricting nature of the environment; and (4) by available community resources.

Some group reaction and attitude patterns appear often enough in clubs of older people to be considered as characteristic group behavior. These help to determine the role that the club leader will play.

Criteria for evaluating a club experience for older people must be established to serve as guides for the future development of programs with this ever-increasing group in our population.

La Mortalité Aux Grands Ages.

P. VINCENT, *l'Institut National d'Etudes Demographiques, 23-25 Avenue Franklin D. Roosevelt, Paris 8, France.*

Les méthodes usuelles de calcul des tables de mortalité sont mal adaptées à l'étude de la mortalité aux grands âges: utilisant les données des recensements, toujours incertaines aux âges élevés, elles ne permettent pas d'opérer sur de très longues périodes, seules susceptibles de fournir des nombres d'observations suffisamment grands.

La "méthode des générations éteintes," au contraire, a permis de tirer profit de tous les décès de viellards survenus en Suisse pendant 62 années utiles. Appliquée à quatre pays (France, Pays-Bas, Suède, Suisse) elle a donné les principaux résultats suivants:

1. le bénéfice des progrès réalisés jusqu'ici dans la lutte contre la mortalité, paraît s'étendre à toute la durée de la vie;

2. ce bénéfice diminue toutefois avec l'âge, jusqu'à devenir insensible aux âges les plus élevés;

3. le quotient de mortalité des vieillards croît régulièrement avec l'âge jusqu'aux plus grands âges;

4. la durée extrême de la vie humaine est limitée;

5. la limite de la vie humaine peut être mesurée: à l'époque étudiée, elle était la même pour les deux sexes et voisine de 110 ans;

6. il est peu probable qu'on ait jamais observé avec certitude un décès à cet âge.

Calcium and Phosphorus Intake in Senile Osteoporosis.

N. VINTHER-PAULSEN, *De Gamles By, Nørre Alle, Copenhagen, Denmark.*

X-ray examination of the spine in 33 old, chronically hospitalized patients revealed osteoporosis in 51 per cent. The calcium intake was examined by weighing the food for 2 one week periods and calculated by the use of food tables. Among the patients who received below 500 mg. calcium per day the incidence of osteoporosis was 74 per cent compared with 21 per cent in the group with an intake above 500 mg. In the case of phosphorus the corresponding figures were 77 per cent and 9 per cent in the groups with intake below respectively above 900 mg. phosphorus.

Serum calcium, phosphorus, and alkaline phosphatase concentrations were independent of the calcium and phosphorus intake and of the presence of osteomalacia.

It is known that osteoporosis may be experimentally produced in animals by dietary restriction of calcium and phosphorus. In patients with osteoporosis the calcium intake in the period during which osteoporosis is developed is unknown. However, people are conservative in their dietary habits, and the present finding of lowered calcium and phosphorus intake in the fully developed osteoporosis makes it probable that most of the patients have also previously omitted foods rich in calcium (milk and cheese).

The investigations thus seem to emphasize the importance of the dietary factor in senile osteoporosis.

Sociologic, Psychologic, and Pathologic Observations in the Old Age Hospital of Basel.

A. L. VISCHER, *Old Age Hospital, Basel, Switzerland.*

The presentation contains a report on sociologic, psychologic, and pathologic studies carried out by the staff of the Old Age Home of the City of Basel. This institution holds 450 inmates and is closely connected with the Buergerspital, the General Hospital of Basel, and with the Medical School of the University. This connection dates back to the Middle Ages. Its effect is that the inmates are part of a living community and do not feel separated from the outside world by an age barrier. All inmates with working capacity are employed in different functions in the General Hospital. This gives them a feeling of usefulness and helps their adjustment.

Careful investigation shows that in Basel 4 per cent of the age class of 65 years and over are inmates of homes for the aged. This percentage has remained the same during the last fifty years, whereas the absolute number has risen greatly.

The old people look upon the home as a refuge from the world. However, within the collective life there is a seeking to be alone. The Rorschach test shows accordance with this fact by the predominance of introversive tendencies. Only the religiously minded face the thought of death consciously, usually the women more so than the men. In cases where introversion is insufficiently realized, inferiority complexes appear.

The medical study consists of a careful analysis of 1836 necropsy reports of inmates who died in the last twenty-five years. The chief feature of the investigation is the absence of normal deaths. In all cases signs of sclerosis were present. An alarming fact is a relatively high incidence of glandular tuberculosis (5 to 7 per cent) and of open pulmonary tuberculosis (5 per cent).

Chemical Studies of the Whole Mouse Carcass in Relation to Age and Calorie Restriction.

M. B. VISSCHER *and* J. T. KING, *Department of Physiology, University of Minnesota, Minneapolis, Minnesota.*

We are making systematic studies of the chemical composition of the mouse carcass at various ages and on various diets. Our experimental plan was to make separate analyses for each component studied in 6 mice for each condition. Carcasses were taken from mice sacrificed with ether, frozen with liquid air, and macerated in the frozen state. The material was dried in vacuo at —1.5 C. and then extracted with anhydrous ethyl ether by the Soxhlet procedure. Weights were obtained at appropriate points. The dried defatted material was ground to a powder and samples analyzed. Chemical analyses have been checked for accuracy and each chemical determination was performed in duplicate. In case of lack of agreement the analyses were repeated. Nitrogen, total fat, water, free and total cholesterol, ether soluble phosphorus, total phosphorus, calcium, sodium, and potassium have been measured.

The results of studies of animals of three ages on two diets showed that the overall composition of the carcass changes relatively little with age except with respect to fat, and further that the calorie restricted mouse is remarkably close in percentage composition to the full fed mouse excepting as to fat. There are statistically significant differences. The total nitrogen percentage in the fat-free carcass decreases (6 per cent) at 18 months as compared with 6 months. The decline is slightly greater for the calorie underfed mouse. Calcium, phosphorus, and sodium each increases slightly, while the potassium falls slightly in percentage. The total carcass content shows that total nitrogen and potassium change in the same direction, while total sodium, calcium, and phosphorus contents are not related to the nitrogen content of the body. It appears that skeletal and extracellular constituents are at least partly independent of cellular mass.

It is noteworthy that the free cholesterol increases with age, when referred to the dry, defatted carcass weight as the basis for reference. When the total content of the carcass is considered it is found that the total cholesterol in the body increases with age, even in the calorie restricted animals which are losing weight, including not only fat but protein. Thus cholesterol increases in absolute amount, out of proportion to the protein changes with age.

There is a small (statistically significant) increase in the water content of the defatted carcass between 6 and 18 months of age in both feeding groups. The corresponding increase (of about 6 times the percentage amount) in the percentage of sodium in the defatted carcass indicates a relative increase in extracellular fluid space with age.

Study of the Aging of Nerve Cells.

O. VOGT, *Institut für Hirnforschung, Neustadt/Schwarzwald, Germany.*

In sections of normal adult human brains stained with cresylviolet hundreds of different types of nerve cells can be distinguished. Each type of nerve cell occurs only in a particular region of the grey matter; it has a special function and reacts in a specific way in its response to harmful agents.

All nerve cells undergo an aging process which leads to the death of the cells. This process may be primary in nature and must in that case be characterized as a normal phenomenon.

In the various cell types the aging process is different. This difference may concern the time of the onset or the speed of the process. Thus, for example, the cells of the Nucleus centralis thalami (Nucleus medianus of Luys), of the oliva inferior, and of the Nucleus basalis (Nucleus substantiae innominatae) age particularly early, whereas the cells of the Nucleus supra opticus (von Brentano-Buttler) and of the Nuclei reticulares are still normal in individuals of 100 years.

Other differences concern the character of the histologic changes. In a few cell types the histologic process consists in simple shrinkage. Most cell types, however, show a replacement of the normal cell constituents by major vacuoles containing clear fatty substances or minute vacuoles containing lipofuscin. The lipofuscin vacuoles may develop from the fat vacuoles. In different cell types the vacuoles start at different sites of the cell body and proceed according to a different pattern.

The aging process may be accelerated or delayed by mutations or external factors (arteriosclerosis, hypoxaemia, poisoning, infections). Frequently the effect is restricted to certain cell types and produces the so-called systemic nerve changes. Exercise acts as a delaying factor in the aging process.

In patients of more than 50 years of age the transneuronal degeneration shows completely the histologic changes which we observe in the cell type during its aging. This fact is in good agreement with the general observations in retired persons and constitutes an important factor in the difficult problem of retirement. It should further be mentioned that in histologic examination of the brains of two women, aged 90 and 100 years, who had been very

active throughout their lives, the aging changes of the nerve cells were found to be considerably delayed. In addition it can be stated that in our collection of specimens we have observed no case in which overwork was found to have accelerated the aging of the nerve cells.

In aging nerve cells different counter reactions from the side of the nucleus are noted. In some cases the nucleus is larger; there are more ribosenucleotides in the nuclear membrane and its vicinity and more Nissl substance present in the cell body. In other cases the number of vacuoles of the nucleolus has increased or the nucleus shows hyperchromatosis of its nuclear sap and pycnosis (previously erroneously interpreted as a degeneration). All these types of nuclear counter responses are particularly conspicuous in active individuals. These facts indicate that an increased counter reaction from the side of the nerve cell nucleus is of significance in delaying the aging process.

Effect of Steroids on the Nasal Mucosa of Elderly Individuals.

R. E. VOTAW, *453 North Taylor Avenue, St. Louis 8, Missouri.*

Institutionalized elderly males and females were studied for systemic and local effects while receiving treatment with estrogens or androgens. Nasal changes were one of the important local findings in this group of carefully controlled patients. It was possible to determine which hormones the patients were receiving by the nasal conditions. Nasal biopsies were taken preceding and during hormone therapy. These nasal changes should be of assistance in the management of nasal problems in patients of all ages including geriatric patients.

W

Senescence and Arteriosclerosis.

L. S. N. WALSH *and* J. JENSEN, *St. Luke's Hospital, St. Louis, Missouri.*

An old antelope, from the St. Louis zoo, which had died from a pulmonary infection, was examined post mortem. The cardiovascular system was remarkably free from change. Inquiry showed that very little is known about the pathology of old animals which die in zoos. Many, however, have a remarkably healthy cardiovascular system. Others show changes but in these lipoid lesions are remarkable by their absence. It is suggested that atherosclerosis and many other arterial lesions seen in senescence are not obligatory age changes, but they are found in old age because the tissues then possess diminished adaptability to insults of a general state characteristic of senescence. It is also suggested that the cardiovascular changes seen in senescent man do not represent a single process but several, one of which is tied to lipoid metabolism, others are concerned with loss of elastic tissue, with changes in vasa vasorum, and with fibrosis.

An organized cooperation between zoos and departments of pathology may be a valuable source of information for the study of senescence.

The Contribution of Private Insurance to the Security of the Aged.

D. B. WARREN, *Consulting Actuary, 915 Olive Street, St. Louis, Missouri.*

The era when the small group of aged individuals in the population could be supported at home by its children is gone. In our present increasingly urban civilization there are basically just two ways of supporting the aged: 1. by their own individual savings, in the form of investments, insurance, or private pension plans. 2. by contributions from the general working population in the form of social security benefits or other similar devices.

With the increasing percentage of aged persons in the population, any form of complete and enforced support by the producing groups might become such a burden on production that youth would rebel and refuse to maintain a social security system. (Statistics are to be included here indicating the estimated future population composition by age groups).

It behooves each working generation, therefore, in its own enlightened self-interest, to provide as much as possible for its own old age. Under present conditions, it is probably a Utopian dream to think of complete self-sufficiency for the aged, but a floor of protection such as is provided by the present level of social security benefits might well be maintained without becoming too great a tax burden, and this together with private savings would permit support of the aged in reasonable comfort.

Not only is there this very real problem of raising sufficient money to support the aged, but there is a corollary problem of making retirement sufficiently flexible so that the community does not lose any productive capacities remaining in the aged.

Private insurance can, and does, offer a practical way of preparing for old age. It makes available annuity contracts, retirement income contracts, endowment contracts which mature in old age, and pure protection contracts which permit the individual to invest his savings in other media while still protecting his family. All of these insurance con-

tracts may be paid-for over the entire working life time in relatively small periodic installments. These contracts have specified maturity dates but normally arrangements can be made at maturity for deferring the income or maturity value if the contract-holder is still actively working. (Illustrations of premium rates and income settlements will be included here.)

Employee pension plans, usually supported by joint contributions from employer and employees, are a private cooperative means of providing for retirement. Such plans are less flexible than individual insurance contracts and may tend to force retirement at an unnecessarily early age; however, they have the advantage of getting the saving job done and providing a relatively good pension at a low cost. (Statistics of estimated coverage under private pension plans will be included here, as well as illustrations of sample benefit schedules and contribution rates.)

A Geriatric Unit in a General Hospital — England.

M. W. WARREN, *the Geriatric Unit, West Middlesex Hospital, Isleworth, Middlesex, England.*

This paper will deal with the functions of a Geriatric Unit in a general hospital giving the advantages of treating elderly patients together in a clinical unit where the unit is staffed and equipped for such work.

Brief mention will be made of the increase in the numbers of elderly persons needing medical treatment in a hospital, with reference to the economic factors involved. Reasons will be given for supporting the principle that a Geriatric Unit should remain an integral part of a general hospital and be of equal status to other medical units.

The functions of such a unit will be discussed and will include: 1) The treatment of patients both as in-patients and out-patients, 2) the teaching of the principles and the practice of geriatric medicine, and 3) research work.

A short description of one such unit will be given, including the main types of clinical patients received and some ideas as to how various clinical and social problems are dealt with.

The need for close cooperation with social services is stressed and the importance of a team spirit working together in an atmosphere of optimism is pointed out.

Planned Housing for the Aged (England).

M. W. WARREN, *the Geriatric Unit, West Middlesex Hospital, Isleworth, Middlesex, England.*

Domestic: Approximately 95 per cent of the persons of pensionable age in Great Britain, men over 65 and women over 60, live alone or with relatives. Altered social conditions, lack of suitable help, reduced size of families, building restrictions due to war and war preparations, together with the increasing proportion of the population of pensionable age have accentuated the accommodation problems. The importance in all domestic planning of the family unit is stressed. Civic planning schemes and the contribution of the voluntary societies are reported and illustrate recent progress in planning. Useful adaptations have been undertaken and many safety devices introduced.

Residential: The modern principle of establishing homes for small numbers of residents is contrasted with the former method of providing large institutions for hundreds of inmates. The needs for a variety of homes to suit those of all temperaments, tastes and from different environments are presented.

Descriptions are given of homes set up by statutory and by voluntary bodies with details of interesting experiments being made by both, emphasizing the need for both.

Other subjects mentioned include the place of recreation and useful occupation, the pros and cons of single rooms and the much debated question of "sick bays." It is pointed out that the success of any home depends more upon the personality, initiative and wisdom of the matron or warden, than upon any other one individual.

Finally, prudent budgeting is urged, because extravagance of materials or in the use of personnel might "set back the clock," bringing about a return to the older conditions on the score of economy.

Rehabilitation of the Hemiplegic.

M. W. WARREN, *The Geriatric Unit, West Middlesex Hospital, Isleworth, Middlesex, England.*

This paper draws attention to a large number of cerebral catastrophes found amongst patients over 60 years of age—and in particular deals with those who as a result develop a hemiplegia. The aetiology of these conditions is mentioned briefly and the need for full clinical examination and adequate investigation is stressed.

Attention is drawn to the fate of the hemiplegic patient whose treatment has failed through undertreatment, lack of knowledge or lack of cooperation.

The common sequelae of such conditions are emphasized and the need for both active physical rehabilitation and attention to morale as well as active preventive measures is stressed.

The need to treat the patient as a whole with full recognition of the psychological and physical features is explained. The effect of failures both on the patients and on the community is pointed out and a full plan of rehabilitation is given with practical details of how best to achieve the desired result at each step in treatment. Simple aids and methods are explained and the general principles of treatment are outlined.

The importance of treating such patients in groups, in a team spirit and in an atmosphere of optimism is stressed.

Voluntary Services for the Elderly in Great Britain.*

M. W. WARREN, *the Geriatric Unit, West Middlesex Hospital, Isleworth, Middlesex, England.*

The Retired Population of a Florida Community.

I. L. WEBBER, *Retirement Research Division, Florida State Improvement Association, Tallahassee, Florida.*

Using the functional criterion of retirement from usual, full-time employment, a survey of retired people in St. Petersburg, Florida, was conducted in July and August, 1950. In 1940, 18.4 per cent of the white population of this city of 96,000 was 65 years of age or over, compared with 7 per cent for the urban white population of the United States. Seventy-six per cent of the respondents were aged 30 through 74; the remainder were 75 years of age or over. The median age for men was 69.8; for women, 66.2. There were 77 men per 100 women. Nearly 78 per cent were married and living with husband or wife; over 16 per cent were widowed; and over 4 per cent were single. Only 13.2 per cent of the sample had lived in Florida before retirement; the majority had come from northern states. The median school year completed was 12.15.

Factors which attracted retired people to the city included its mild climate, the healthful situation, and the recommendations of relatives and friends. The community's quietness and friendliness were also important.

Retired people are organized in (1) societies composed of former residents of certain states, (2) associations of former employees of certain industries, and (3) recreational clubs. St. Petersburg appears to be successful in meeting the needs of middle-class older people.

Life in the Home for Older Persons.

J. WEIL, *The Montefiore Home, 3151 Mayfield Road, Cleveland Heights, Ohio.*

The past decade was a revolutionary epoch in the field of gerontology. The advancements in medicine, pharmacology, and social sciences had a dramatic influence on the status of the older person. Prevention, treatment, and rehabilitation in medicine, as well as in social service, have rapidly evolved the problems of the aged as a group into the problems of the aged as individuals. Society is gradually becoming aware of the needs and the potentialities of the aged individual and is beginning to recognize the latent assets in the responsibilities for a formerly depreciated group of our population. The Washington Conference on Aging last year has greatly stimulated public and private agencies, as well as communities in general. A professional concept of dealing with the needs of the old has entered the care of older people.

Public and Private Family Service Agencies have included the aged in their case work program. The Old Folks Homes have begun to adopt professional services for their residents. Administrations and Boards have geared their programs towards this new concept. The decreased mortality and extension of life span necessitated a reorientation of existing services and the establishment of new programs.

Life in a Home for Older Persons has to provide meaning to the individual resident. A purpose for living has to be given back to the older person through constructive occupation and an active social life within the home as well as in the community. Social service will help overcome the initial hurdles of adjustment of a new resident to group life in an institution and will work hand in hand with rehabilitating forces of physical medicine, nutritional, and nursing services.

The concerted efforts of all these services shall be directed towards adjustment, prevention, and rehabilitation.

Ego-Defenses in Later Life: Some Clinical Observations.*

J. WEINBERG, *University of Illinois School of Medicine and Michael Reese Hospital, Chicago, Illinois.*

Housing Problems and Aged People.

R. WIBAUX, *14, Rue de l'Abbé Rousselot, Paris 17e, France.*

Housing problems are acute in all countries. Many apartments are occupied by old people who use only part of the rooms but nevertheless refuse to move or sublet although they are unable to keep the apartment in order.

It is possible that some old and underprivileged people would agree to move if they were offered living quarters in institutions for the aged. Most existing homes for old people are unsatisfactory and frequently very uncomfortable. To induce old persons to move from their apartments it would be necessary to make the institutions as attractive as possible. In any case the following rules should be observed: (1) aged people should not be transplanted from the place where they have lived and worked, (2) married people should be allowed to live together, (3) aged people should not be isolated but should be kept in contact with the outside world.

The continuous progress in the cure of tuberculosis should make it possible to transform many sanatoria into homes for aged people.

Changes Accompanying Aging in the Brains of Guinea Pigs.

H. H. WILCOX, *Department of Anatomy, School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania.*

A series of brains from guinea pigs ranging in age from 139 to 2765 days (7.6 years) were provided by Rogers and Woerner. Perfusion-fixation with isotonic gum acacia solution of 10 per cent formalin was followed by serial sectioning and staining with buffered thionin. The most striking age change was accumulation of lipoid pigment in cells of various brain stem nuclei. Earliest deposits of pigment occur in the mesencephalic nucleus of V and the nucleus of the hypoglossal nerve. The red nuclei, nuclei of III, IV, and VI, motor nucleus of V, nucleus of the spinal tract of V, facial nucleus, and the vestibular nuclei show pigment at a slightly older age. The dorsal motor nucleus of X and the cochlear nuclei are the last to undergo pigmentation.

Changes in amount and distribution of Nissl substance were not observed at any age, except in cytoplasmic areas occupied by the lipoid pigment. No appreciable loss of neurons in any of the brain stem nuclei, Purkinje cell layer, or pyramidal cell layer of the cerebral cortex could be detected qualitatively. A marked distention of the chorioid plexus of animals of 3.0 years and older was correlated with an accumulation of fat in the connective tissue of the plexus. Changes in the aged guinea pig brains prepared by the perfusion-fixation technique were less pronounced than those described in other species and in guinea pig brains fixed post mortem by immersion in formalin.

Planning for the Aged in Canada.

J. W. WILLARD, *Research Division, Department of National Health and Welfare, Ottawa, Canada.*

A discussion will be presented of the pros and cons of the universal pension that is being introduced in Canada; methods of financing, including special reference to pay-as-you-go vs. funding, and graded vs. flat rate benefits; assistance programs; housing for the aged; as well as the employment of older workers in Canada. The experiment in counselling service for older workers carried on by the National Employment Service and the use of films in persuading employers to employ older people will also be considered.

Geriatric Experiences with the Negro Aged.

J. L. WILSON, *216 West 137 Street, New York 30, New York.*

While there are no sharp differences in the majority of diseases affecting the Negro aged from those affecting the white race in the same age bracket, there are certain etiologic factors and incidence of ailments which merit consideration and correction.

On the basis of a study of an active Negro population between the ages of 55 and 91 the diseases encountered in the order of their occurrence may be listed as follows: 1) cardio-vascular disease with or without hypertension, 2) arteriosclerosis, generalized, 3) caries and pyorrhoea with hypertrophic and infectious arthritis and osteoarthritis, 4) calcified fibroma uteri, 5) carcinoma of the breast, uterus, stomach, and lungs (in order of occurrence), 6) pneumonia and influenza, 7) diabetes mellitus with complicating infections and gas gangrene, 8) pulmonary tuberculosis (on the decrease), 9) aneurism (arteriosclerotic in origin rather than luetic

as seen two or three decades ago), 10) leg ulcers (due to varicose veins, arteriosclerosis, trauma, or sickle-cell anemia), 11) cirrhosis of the liver, 12) senile dementia, cerebral arteriosclerosis, and cataracts, 13) vitiligo, 14) arterio-venous fistula due to trauma, 15) ainhum.

The factors molding the incidence of certain ailments in aged Negroes are primarily economic. A low wage scale and long working hours tend to undermine body resistance, and poor housing and overcrowding promote unsanitary conditions and predispose to contagious diseases. The factor of trauma in hazardous occupations plays an important role in the production of certain surgical ailments, while the existence of inadequate diet promotes low serum proteins which retard tissue repair. Of paramount importance is the refusal of some hospitals in certain areas to admit Negroes who in many instances are not hospitalized when necessary. Of nearly equal significance is the refusal of several medical schools to give postgraduate and refresher courses to Negro physicians.

Notwithstanding these economic and educational barriers the span of life and the total Negro population have continued to increase.

Developments in Assistance for the Aged and the Disabled.

E. WINSTON, *State Board of Public Welfare, Raleigh, North Carolina.*

Much of the impact of the growing numbers of the aged, and the economic problems incident thereto, is focused upon income maintenance for those individuals whose old age cannot be provided for through their own efforts, the support of relatives and friends, or some type of insurance system under either private or public programs. The major program for meeting this problem is old age assistance, first set up under the Social Security Act in 1935 with the Act amended at various times since that date. Costs are met by Federal, State, and local governments. While the approach to public assistance has been directed toward a supplemental program of income maintenance for older people, the inadequacies of other sources of income have made old age assistance essential for a large proportion of all persons 65 years of age and over.

All 48 States, the District of Columbia, Alaska, Hawaii, Puerto Rico, and the Virgin Islands are now included in the program. As of June, 1950, nearly 2,800,000 persons were recipients of old age assistance. The average monthly payment was $44.00 with the grants among the States ranging from an average of less than $21.00 in Alabama to more than $70.00 in California. The ceiling for Federal matching funds is $50.00 so that States with higher payments meet the difference entirely from State and local funds. The inadequacy of the ceiling under present living costs in the United States is reflected in the large number of States which make grants above $50.00. On the other hand, southern States in particular pay average grants far below the ceiling.

Furthermore, there is a wide range among the States in the proportion of the population 65 years of age and over receiving old age assistance. While roughly one-fourth of the persons in the eligible ages are recipients of old age assistance, the proportions range from under 10 per cent in several States to more than 80 per cent in one State. The reasons for these differences are numerous and States have undertaken various methods for attempting to control what to them appear to be unduly high recipient rates.

Amendments to the Social Security Act in 1950, expanding old age and survivors insurance coverage, have had a marked impact upon old age assistance. Increasingly the highly industrialized States in particular will find old age assistance becoming a supplementary program for income maintenance. The agricultural States, in general, have high assistance loads and are facing serious problems in terms of financing the non-federal portion of old age assistance.

The 1950 amendments to the Social Security Act made available for the first time Federal participation in aid to the permanently and totally disabled between 18 and 65 comparable to participation in financial assistance to the aged. Studies are now under way which will make it possible to analyze the earlier months of operation of the program in detail. This program is only a partial answer to the widely advocated participation by the Federal government in general assistance so that all needy persons may have the basic protection of freedom from want that is inherent in the philosophy upon which the several public assistance categories are based.

What is Needed for Economic Security in Old Age.

E. E. WITTE, *Department of Economics, University of Wisconsin, Madison, Wisconsin.*

That older people must have means of livelihood is obvious. As the period of old age lengthens and standards of living rise, the total amount required for an individual's support in old age increases. How large this is, is indicated by the fact that above

$15,000 is needed today at age 65 to buy an annuity of $100 per month for the rest of life.

Of all possible sources of economic support in old age, the most common as well as the best is employment. But employment is not a cure-all for the problem of economic support in old age. In the United States only 45 per cent of all men over 65 are now gainfully employed and only 50 per cent were employed at the peak of World War II. Less than 10 per cent of the women in this age group have ever been employed; women outnumber men among our older people and only one-third have husbands to support them. While we ought to be able to increase the percentage of the old people whose principal support comes from their own earnings or those of their spouse, it is apparent that a majority must live, at least mainly, from sources other than their earnings.

Of the other sources of support the one formerly most important, that of assistance from children and other relatives, is declining. The traditionally most secure source, that of savings, is the principal reliance of less than 10 per cent of the old people. Industrial and other private pensions are of increasing importance, but to date are paid only to a few hundred thousands of the older people and seem unlikely to ever benefit more than a small minority. Veterans' pensions and related allowances, civilian government employees' pensions, and railroad retirement benefits are paid to somewhat larger numbers, but go only to selected groups who are by no means the most needy.

It is apparent that there is great need for public old age security programs of general application. Most desirable of these is contributory old age and survivors insurance, but there is need also for old age assistance.

A many sided attack upon the problem of economic support in old age is clearly indicated. Public programs should attempt no more than to guarantee a minimum income sufficient for a decent existence to all people. Private means have their place in providing supplemental income beyond the bare minimum, which is a right of all people.

Y

The Human Aspect of Gerontology: What Women's Voluntary Services Are Doing in in Great Britain.

P. YOUNG, *Women's Voluntary Services, 41 Tothill Street, London S.W.I., England.*

The rapid expansion of Britain's Welfare State since 1946 is providing the framework of material and financial services to the elderly, but without a thoughtful and sympathetic psychologic approach the official services will be devitalised and specialist knowledge largely wasted.

Much of the work for the elderly is still in the experimental stage but during the past six years practical work by WVS has demonstrated how, within the official framework, to meet the needs of the aged for security, a real home, possessions, affection, reasonable activity, and a knowledge that they are still wanted and are of use.

The 18 Residential Clubs are planned so that each resident has his or her own home and possessions within the community. Security in times of infirmity and sickness is assured by the Half-Way House and Nursing Homes run in close co-operation with the Regional Hospital Boards. Home services for the aged—visiting, hot meals, and general assistance—have shown the value of the help and friendship which volunteers can give, particularly when co-operating with officials. Non-residential clubs, with a membership of over 56,000, and work in hospitals, have produced many startling examples of the results of aiming to give psychologic as well as material satisfaction to the aged.

Z

Institutional Care of the Aged.*

F. D. ZEMAN, *111 East 88 Street, New York, New York.*

The Reduction in Operative Mortality in the Very Aged.

S. E. ZIFFREN, *Department of Surgery, State University of Iowa College of Medicine, Iowa City, Iowa.*

A review of the mortalities following surgical procedures on the very aged (80 years of age or over) from 1943 through 1950 at the University Hospitals of the State University of Iowa will be presented. These figures show a definite lowering of the mortality rate while the number of operative procedures has increased. The types of procedures performed and the cause of death when known will be indicated and means of prevention suggested. With a better understanding of the physiologic changes in the aged, improved preoperative, operative, and postoperative care has resulted. The antibiotics have also played a large role in these improved results. As a rule, elective procedures should not be performed in the extreme aged, but essential surgical procedures should be carried out, as age itself is not a contraindication to surgery.

The Influence of Age on Mouse Liver Acid and Alkaline Phosphatases.

A. ZORZOLI, *Department of Biochemistry, Washington University Dental School, St. Louis, Missouri.*

The acid and alkaline phosphatase activities of the liver of C 57 Black mice are being studied as a function of growth and aging. Two samples are taken from each liver. One is homogenized and used for quantitative estimation of the enzyme activities and for the total protein content; the other is fixed in acetone and treated by the methods of Gomori for the histochemical localization of the enzymes.

Acid phosphatase activity rises sharply shortly after birth and reaches a peak between the fifteenth and twentieth post-natal days. A rapid decline follows and by 1 month of age the activity is at a level which is maintained until the seventeenth month, the oldest age studied. The enzyme is localized in nuclei and cytoplasm of the parenchymal cells, in the bile ducts, and in the hemopoietic tissue. Only the activity occurring within the parenchymal cells changes with change in age.

The alkaline phosphatase is similar to the acid enzyme in that the activity increases in the early post-natal days and then falls to a constant level. However, the peak is reached sooner, i.e., at the eighth day, and the order of activity is much lower.

The Relation of the Adrenal Cortex to Peripheral Vascular Alterations During Hypertension.

B. W. ZWEIFACH, *Department of Medicine, Cornell University Medical College, New York, New York.*

The adrenal cortex, being directly concerned with intracellular homeostasis, occupies a unique position basic to the operation of humoral and neurogenic homeostatic mechanisms participating in the regulation of the peripheral vascular bed. Insufficient data are available concerning the extent to which changes in adreno-cortical function in experimental renal hypertension and in human essential hypertension represent primary factors in the development of the syndrome or appear secondary to changes in other organs.

Adrenal insufficiency is accompanied by a loss of vascular tone, evidenced by suppression of spontaneous vasomotion and the development of hyporeactivity. On the other hand, stimulation of the adrenal cortex results in increased vascular reactivity, augmentation of vasomotion, and increased vasoconstriction. In addition to a direct effect on the blood vessels themselves, these changes reflect disturbances in other organ systems.

We have shown that an intact adrenal cortex is needed for proper functioning of renal VEM homeostatic mechanisms. Through the use of tetrazolium (TTC) staining, it has been found that discharge of the adrenal cortex, either by ACTH or by stress, is accompanied by changes in the histochemical pattern of the renal tubules which resemble those seen in kidneys of hypertensive animals or patients.

Although the administration of excessive amounts of DCA and salt regularly produces hypertension in the rat, the syndrome, on the basis of in vitro renal VEM studies and histochemical staining with TTC, was shown to differ in specific mechanisms from experimental renal hypertension and essential hypertension. Histochemical studies with TTC on adrenals of hypertensive animals and patients have revealed a striking difference in the resistance of the zona glomerulosa of hypertensive adrenals to the inhibitory effects of agents, such as malonic acid and sodium fluoride, in contrast to the complete inhibition of TTC activity by these inhibitors in normotensives. There is evidence directly relating the adrenal cortex to VDM mechanisms within the liver proper. In adrenal insufficiency, VDM appears early in the blood stream, despite the maintenance of essentially normal blood pressures. The livers of such animals contain considerable VDM and show an impaired capacity to inactivate this principle.

It would appear that the adrenal cortex functions on several different levels in the hypertensive syndrome, not as a primary initiating factor, but as an essential link in the chain of factors which regulate peripheral vascular homeostasis.

Exhibits

The commercial exhibits will be located in the Mezzanine and the scientific exhibits will be located in the Ivory Room of the Hotel Jefferson. They will be open from 9:00 a. m. to 4:30 p. m. each day, September 9 through 14. A special period for viewing exhibits has been set aside on Tuesday, September 11, from 11:00 a. m. to 12:00 noon.

COMMERCIAL EXHIBITS

A. S. Aloe Company, 19th and Olive Streets, St. Louis, Missouri.

Bilhuber-Knoll Corp., Crane Street, Orange, New Jersey.

Ciba Pharmaceutical Products, Summit, New Jersey.

Lederle Laboratories, 30 Rockefeller Plaza, New York.

Parke, Davis & Co., Detroit 32, Michigan.

A. H. Robins Co., Richmond, Virginia.

The A. H. Robins Company display is featuring the sedative-antispasmodic, DONNATAL; the antirheumatic, PABALATE; ENTOZYME, digestant with the unique "peptomatic" action; the highly effective antitussive-expectorant, ROBITUSSIN; ALLBEE WITH C, high potency "B" Complex Capsule with ascorbic acid; and PHENAPHEN WITH CODEINE, our new analgesic.

Robins' Medical Service Representatives will welcome the privilege of discussing with physicians attending the Assembly these and other products in the company's line of prescription specialties.

J. B. Roerig Co., 536 Lake Shore Drive, Chicago, Illinois.

Schenley Laboratories, Lawrenceburg, Indiana.

Schering Corp., 2 Broad Street, Bloomfield, New Jersey.

Smith, Kline & French, 1530 Spring Garden, Philadelphia, Pennsylvania.

U. S. Vitamin Corp., 250 East 43 Street, New York 17, New York.

Winthrop-Stearns, Inc., 1450 Broadway, New York 18, New York.

COMBINED BOOK EXHIBIT

Abingdon-Cokesbury Press, 810 Broadway, Nashville 2, Tennessee. *Older People and the Church* by Paul B. Maves and J. Lennart Cedarleaf, $2.50.

Charles C. Thomas, Publisher, 301 East Lawrence, Springfield, Illinois. *The Care of the Aged, The Dying and the Dead* by Alfred Worcester, $2.00.

Columbia University Press, 2960 Broadway, New York 27, New York. *Aging Successfully* by G. Lawton, $3.25. *New Goals for Old Age* by G. Lawton, $3.00. *Social and Biological Challenge of Our Aging Population,* Proceedings of the Eastern States Health Education Conference, March 31-April 1, 1949, New York Academy of Medicine, $2.75. *Biological Foundations of Health Education,* Proceedings of the Eastern States Health Education Conference, April 1-2, 1948, New York Academy of Medicine, $2.50.

John Day Company, 210 Madison Avenue, New York 16, New York. *The Better Half of Your Life* by Charles H. Lerrigo, $3.50.

E. P. Dutton and Company, 300 Fourth Street, New York 10, New York. *How to Live Longer* by Justus J. Schifferes, $3.00.

Georg Thieme Publishers, Thomaskirchhof 21, Leipzig, Germany. *Altern und Krankheit* by Max Bürger, 38 RM.

Harvard University Press, 44 Francis, Cambridge 38, Massachusetts. *Diseases in Old Age* by Robert T. Monroe, $5.00

Health Publications Institute, 216 North Dawson, Raleigh, North Carolina. *Man and His Years,* Proceedings of the National Conference on Aging.

University of Michigan Press, 2556 Administration Building, Ann Arbor, Michigan. *Living Through the Older Years* by Clark Tibbitts and Wilma Donahue, $2.00. *Planning the Older Years* by Wilma Donahue and Clark Tibbitts, $2.50. *Growing in the Older Years* by Wilma Donahue and Clark Tibbitts, $2.50.

C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, Missouri. *Geriatric Nursing* by Kathleen Newton, $4.50. *Care of the Aged* by Malford W. Thewlis, $8.00.

Mutual Benefit Insurance Company, 300 Broadway, Newark, New Jersey. *Begin Now—To Enjoy Tomorrow* by Ray Giles, $.50 when bought in quantity.

Stanford University Press, Stanford, California. *A Classified Bibliography of Gerontology and Geriatrics* by Nathan W. Shock, $15.00. *Trends in Gerontology* by Nathan W. Shock, $2.50.

Westminster Press, Witherspoon Building, Philadelphia 7, Pennsylvania. *The Best is Yet to Be* by Paul B. Maves, $1.50.

Year Book Publishers, 200 East Illinois, Chicago 11, Illinois. *Treatment of the Patient Past Fifty* by Ernst P. Boas, $6.50.

SCIENTIFIC EXHIBITS

Leonardo da Vinci's Studies of the Aging Process.

E. BELT, *Library of Vinciana, 1893 Wilshire Boulevard, Los Angeles 5, California.* *(See Abstract, page 60)*

Mortality Curves and Rates of Aging.

D. F. DAVIES, *Department of Hypertension, Washington University School of Medicine, St. Louis, Missouri.*

The kidney ages at a constant rate between the ages of 30 and 90. Glomerular filtration rate, effective renal plasma flow, and tubular excretory capacity show a constant dropping off in healthy men between early and late adult life. On the other hand, the mortality curve is logarithmic and has been interpreted to mean that man ages at an increasingly rapid rate. These two ideas are reconciled by the exhibit. Other fallacies in the "obvious" interpretation of physiologic or pathologic data plotted against age are demonstrated graphically. The difficulties of studying true age changes are emphasized. Relative merits of longitudinal and cross-sectional data are compared.

The Institute for Human Adjustment Gerontologic Program.

W. DONAHUE, *Institute for Human Adjustment, University of Michigan, Ann Arbor, Michigan.*

The University of Michigan exhibit will illustrate the programs in education for aging, group and community work, and research projects of the Institute for Human Adjustment. Publications will be on display and demonstrations of recorded materials will be scheduled at stated intervals.

Our Older Citizens Look to Community Action and Nation-wide Teamwork.

Federal Security Agency, Office of Publications and Reports, Washington 25, D.C.

The Federal Security Agency's exhibit identifies problems of aging which require community action and nation-wide teamwork for their solution and indicates the relationship of the Agency to these problems. A brief leaflet for distribution with the exhibit amplifies the points covered in the visual presentation.

Old People's Town and Old Pensioners Homes.

T. GEILL, *De Gamles By, Copenhagen, Denmark. (Abstract not received).*

Geriatrics.

Official Journal of the American Geriatrics Society
84 South 10 Street, Minneapolis 3, Minnesota.

A professional medical journal devoted to study and treatment of the diseases and processes of the aged and aging, GERIATRICS publishes primarily clinical aspects of medical care of the older people. Copies of recent issues of the journal will be on display and will be available to interested individuals.

Length of Life and the Elderly Population in Iowa.

R. GINZBERG *and* P. THORNTON, *Gerontological Unit and Occupational Therapy Department, Mental Health Institute, Cherokee, Iowa. (This exhibit is presented under the auspices of the State of Iowa).*

This exhibit consists of graphs, diagrams, and tables, and shows that Iowa heads the list of states with a high percentage of elderly people. In 1948, 24.60 per cent of deaths in Iowa occurred among persons 80 years of age and over, 51.65 per cent died after their seventieth birthday and 62.16 per cent died after their sixty-fifth. In Iowa people live longer. They died in advanced life predominantly from arteriosclerosis and cancer, the same causes as in other parts of the United States.

Factors responsible for the higher percentage of elderly are graphically shown:

1. Low death-rates in Iowa for at least the last thirty-five years.
2. Low infant mortality.
3. Low number of stillbirths.
4. Low mortality from tuberculosis.

Comparisons are made with: (a.) Four New England States (Maine, New Hampshire, Vermont, Rhode Island) because the percentage of elderly is close to that of Iowa; (b.) Kentucky, because the percentage of elderly is close to that of the average of the United States and the population is near that of Iowa; (c.) United States averages.

Information is also presented as to the general population and migration. Comparisons are made

with the 1940 census. States with a high percentage of elderly (above 9) and low percentage (below 6) are listed.

Origin and Distribution of the Vasa Vasorum.

T. W. HAHN *and* C. A. WOERNER, *University of Louisville, Louisville, Kentucky.*

The vasa vasorum were demonstrated by the lead chromate injection method of Williams and by the demonstration of alkaline phosphatase in the endothelium described by Scharrer. In the ascending aorta the vasa vasorum arise from the coronary arteries, rarely from the lumen of the aorta. There are a few, usually less than ten, small arterioles arising from the lumen of the arch of the aorta. In the descending aorta the vasa vasorum arise from branches as the intercostal arteries; they then pass in through the adventitia to the outer third of the media; only occasionally do capillaries extend into the middle third of the media. Capillaries are practically never found in the inner third of the media or intima. In arteries altered by arteriosclerosis there are occasionally found extensive networks of capillaries in the thickened intima. The vasa vasorum of the larger coronaries pass in through the adventitia. While vasa vasorum have been described arising from the intimal surface and distributed to the entire thickness of the coronary arteries no examples of this type were found in this study.

Specimens of the brachial, radial, basilar, and middle cerebral arteries were also studied. The vasa vasorum of these arteries arise from the lumen or a branch, pass back through the adventitia, and are distributed through the outer third of the media very much like those of the aorta and coronary arteries.

Influence of Parental Longevity, Parental Age, and Size of the Family upon the Sex Ratio and Longevity of the Offspring in a Material of 18,000 Cases Compiled from Finnish and Swedish Family Records.

E. JALAVISTO, *Institute of Physiology, University of Helsinki, Helsinki, Finland.*

Graphs showing the life table functions: expectation of life (e_x) and mortality (d_x) in populations formed by offspring to old and to young, to long-lived and to short-lived mothers and fathers are exhibited. The structure of the material is analyzed in respect to the sex ratio at birth, as well as the differences of male preponderance of mortality in different age groups. The influence of maternal age and parity upon the sex ratio is also shown. The effect of the size of the family upon the sex ratio of children of the same parity is furthermore considered.

Journal of Gerontology.

Official Journal of the Gerontological Society, Inc.
660 South Kingshighway Boulevard, St. Louis 10, Missouri.

The Journal of Gerontology, a professional quarterly journal for the study of old age, publishes original manuscripts dealing with the problems of aging from the fields of clinical medicine, natural and social sciences, and the humanities. A current index of periodical literature, review articles, and book reviews are also published in each issue.

Copies of the Journal of Gerontology will be on display and will be available for sale.

"Normal" Characteristics of Middle-Aged Men Compared with Young Men.

A. KEYS, J. BROZEK, A. HENSCHEL, E. SIMONSON, *and* H. L. TAYLOR, *Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis, Minnesota.*

Examples are given of the many characteristics in which clinically healthy ("normal") middle-aged men differ from their counterparts in the early twenties. These include blood cholesterol concentration, gross body composition, residual air of the lungs, cardiac output, electrocardiographic features, pattern of the ballistocardiogram, and some personality items as revealed in psychologic tests. Quantitative data cover 290 business and professional men aged 45 to 55 years and 180 college students. All of these men were studied in detail over a period of several years and none had complaints or major defects. The data show the need for norms adjusted according to age and illustrate the errors which arise when the age factor is neglected.

A New Procedure for Determination of the Respiration of Tissue Homogenates.

J. E. KIRK *and* P. FROM HANSEN, *Division of Gerontology, Washington University School of Medicine, St. Louis, Missouri.*

The procedure permits determination of both the oxygen consumption and carbon dioxide production of tissue homogenates at 20 minutes' intervals during an experimental period. The diluted homogenate is

stored in a glass syringe, provided with a stop cock. During the experiment the syringe is placed in a thermostat. For analysis a sample of the homogenate is transferred to the chamber of a Van Slyke apparatus, and the oxygen, carbon dioxide, and nitrogen content determined by the method of Van Slyke and Neill. The syringe procedure further makes possible the withdrawal at any time of samples for determination of other metabolites (e.g., lactic acid).

Nutritional Aspects of Some Degenerative Diseases Associated with Aging.

W. B. KOUNTZ, *Division of Gerontology, Washington University School of Medicine, St. Louis, Missouri.*

The exhibit will consist of charts showing the effects of low, moderate, and high protein intake on the nitrogen balance, the body weight, and the clinical condition of older individuals. The influence of hormones and other substances on the nitrogen balance will also be demonstrated.

Multiple Causative Factors in Arteriosclerosis.

A. I. LANSING, T. B. ROSENTHAL, *and* M. ALEX, *Department of Anatomy, Washington University School of Medicine, St. Louis Missouri.*

Material and data will be presented to support the conclusions that calcium accumulates in aging arterial elastic tissue; that atheromata reveal severe underlying elastic tissue calcification; that the elastic tissue calcification precedes the formation of atheromata; and that the focal distribution of atheromata in the aorta correlates well with the distribution of elastic tissue calcification.

The hypothesis is offered that at least two separate processes are involved in human arteriosclerosis. One factor involves local stress and aging, and another involves cholesterol metabolism and cholesterol accumulation in vessels.

The Effect of Experimental Renal Hypertension on Experimental Cholesterol Atherosclerosis.

W. G. MOSS, J. P. KIELY, *and* G. E. WAKERLIN, *Department of Physiology, University of Illinois College of Medicine, Chicago, Illinois.*

Material will be presented which may help clarify the role of hypertension in the genesis and development of atherosclerosis. Projection and microscopic slides, whole mounts, and photomicrographs will be shown of lesions produced when experimental renal hypertensive and normotensive dogs have been fed a diet containing 1 gm. of cholesterol and 0.1 gm. of thiouracil per kg. per day for two and one-half to thirteen months. It is quite evident that hypertension accelerates the onset and accentuates the severity of atherosclerotic lesions produced by this diet.

Animal Experimentation.

National Society for Medical Research, 185 North Wabash Avenue, Chicago 1, Illinois.

This exhibit visually portrays the role of animal experimentation in the development of medical knowledge and new technics.

The Etiology of Atherosclerosis.

O. J. POLLAK, *Quincy City Hospital, 114 Whitwell Avenue, Quincy 69, Massachusetts.*

A series of color transparencies are shown to demonstrate: (a) the sequence of events in the development of human and animal atherosclerosis: (1) hydropic swelling of the intimal endothelium caused by changes in hydrostatic pressure, (2) hyalinosis and thickening of the subintima due to accumulation of plasma lipoproteins leaked in through a damaged endothelium, (3) precipitation of lipid matter, namely cholesterol, and phagocytosis of same; (b) the identity of juvenile vascular alterations with the initial stage of adult and senile atherosclerotic lesions.

Separate Neural Arch.

M. B. ROCHE *and* G. G. ROWE, *Departments of Surgery and Anatomy, Washington University School of Medicine, St. Louis, Missouri.*

The results of a survey of 4,200 skeletons bearing on the incidence of the separate neural arch are presented. The relation of this incidence to race, sex, and age is analyzed. Thirty-two lumbosacral columns have been selected from the series to demonstrate the various patterns of defect involving the neural arch.

Summaries of radiographic findings in the lumbosacral region of 100 children between 1 and 16 years of age and of examinations of fetuses (including reports in the literature) are shown. Photographs of

successive stages of a dissection of a lumbosacral region presenting a separate neural arch in the fifth lumbar vertebra are included as well as wet, ligamentous preparations.

Spontaneous Tumors of Senile Guinea Pigs.

J. B. ROGERS, *Department of Anatomy, University of Louisville School of Medicine, Louisville, Kentucky.* *(See abtsract, Page 142).*

Pathogenesis of Arterial Hypertension.

H. A. SCHROEDER, J. R. BEEM, D. F. DAVIES, G. HAHN, *and* H. H. M. PERRY, *Department of Hypertension, Washington University School of Medicine, St. Louis, Missouri.*

The exhibit shows that hypertension is basically cyclic in character. The relation of psychogenic, neurogenic, humoral, and renal factors is demonstrated. Characteristics of each type are described and the terminal effects on blood vessels are shown. Results of studies of various dietary and therapeutic measures for the control of hypertension will be demonstrated.

Research Program and Facilities of the Section on Gerontology.

N. W. SHOCK, *Section on Gerontology, National Heart Institute, National Institutes of Health, Public Health Service, Federal Security Agency, and the Baltimore City Hospitals, Baltimore, Maryland.*

This exhibit illustrates the research facilities of the Section on Gerontology located in the Baltimore City Hospitals. Various aspects of the research program of the Section are shown and results of selected studies are presented. Examples of collaboration with other laboratories are also illustrated.

The Development of Old Fashioned Non-Electrical Hearing Aids and Modern Methods of Testing Hearing.

S. R. SILVERMAN, *Central Institute for the Deaf, 818 South Kingshighway, St. Louis 10, Missouri.*

The famous collection of old type non-electrical hearing aids compiled by the late Dr. Max A. Goldstein, founder of Central Institute for the Deaf, will be on display. The collection includes ear trumpets, audicles, acoustic vases, and embellished sea shells. Apparatus will be available to test the hearing of viewers by modern pure tone and speech reception methods. The attendants will be prepared to point out the gerontologic implications of impaired hearing.

Studies in Survival.

R. R. SPENCER *and* M. B. MELROY, *National Cancer Institute, Federal Security Agency, U. S. Public Health Service, National Institute of Health, Bethesda 14, Maryland.*

This exhibit contrasts and emphasizes the role of rhythmic or interval exposures of serial culture populations of unicellular species to unfavorable environments with that of continuous exposures and its effect on the survival or the failure to survive of such cultures.

The acceleration of the rate of profound mutations (transmutations or the emergence of a new species) by rhythmic exposure is presented.

Histochemical Alterations in Autonomic Ganglion Cells Associated with Aging.

N. M. SULKIN *and* A. KUNTZ, *Department of Anatomy, St. Louis University School of Medicine, St. Louis, Missouri.*

This exhibit consists of a series of color photomicrographs which illustrate histochemical alterations in autonomic ganglion cells that are associated with the process of aging. The methods employed include the usual routine technics as well as histochemical procedures to demonstrate nucleoproteins, glycogen and other carbohydrate moieties, ascorbic acid, Golgi apparatus, lipids, pigments, and enzyme systems. The material studied was obtained from human autopsies and from carefully selected dogs.

Facilities Available in the United Kingdom for Older People.

R. E. TUNBRIDGE *and* M. W. WARREN, *West Middlesex Hospital, Isleworth, Middlesex, England.*

The exhibit presents a brief outline of the various services, both medical and social, which are available at the present time to aging people in Great Britain. Although the exhibit does not include all of the agencies active in this field, as wide a presentation as space permits has been attempted.

U. S. Department of Labor, Washington, D. C.

Experimental Atheromatosis in the Guinea Pig.

C. A. WOERNER, *University of Louisville, Louisville, Kentucky.*

Experimental atheromatous lesions were produced in guinea pigs by the intravenous injection and tube feeding of triglycerides with short and long chain fatty acids and cholesterol in colloidal solution.

Triglycerides of short chain fatty acids, such as tributyrin, when injected as a 10 per cent emulsion over a period of forty-eight hours in a dose of 10 gm. per kilo, failed to produce any observable lesions. The same amount of triglyceride of a long chain fatty acid, such as found in peanut oil, produced a few small deposits of lipid.

Following injections of cholesterol solution in a dose of 2 gm. per kilo over a period of forty-eight hours, occasional small areas of lipid-containing foam cells were found in the aorta and coronary arteries; these lesions were all less than 50 μ in diameter. The amount of colloidal cholesterol tolerated was considerably increased by the addition of alpha tocopherol (5 mg. per milliliter) to the solution, but the number and size of the lesions were not greatly increased. When emulsions of purified cholesterol were tube fed, few lesions were produced after a dose of 2 mg. per day for sixty days. Egg yolk alone, administered in the amount of 4 gm. a day, produced lesions which were first observed after thirty-five to forty days. The addition of 2 gm. of cholesterol per day to the 4 gm. of egg yolk did not markedly increase the size or number of the lesions or the rate of their development.

The Pathology of the Eye in Old Age.

F. D. ZEMAN, *111 East 88 Street, New York, New York.*

This study of more than 100 eyes, examined both clinically and pathologically, illustrates vividly by means of colored microphotographic transparencies, the changes associated with the aging process and with various diseases. This exhibit was awarded the silver medal at the scientific exhibit of the American Medical Association in 1949, and at the American Academy of Ophthalmology in 1950.

International Association of Gerontology

At the first International Gerontological Conference held in Liège, from July 10 to 12, 1950, the represented gerontologic societies of 12 countries (Belgium, Denmark, Ireland, Spain, United States of America, Finland, France, Great Britain, Holland, Italy, Sweden, and Switzerland), decided on the creation of an International Association of Gerontological Societies.

A Governing Body including a delegate from each Society was constituted, and a plan was drawn up for the rules of the International Association. This project and drafting of the rules had to be slightly modified in order to meet the requirements of an official registration of the rules in one of the countries concerned, namely Belgium. The establishment of an Association of Societies could not be maintained because one cannot legally associate societies, each of which has no legal standing in its own country.

Therefore, it was decided by the Governing Body to turn the Association into an International Association of Gerontology. The rules of this Association, the details of which are inspired by the writings laid down by the Governing Body, were thoroughly studied by two highly qualified men of the law in Belgium, namely Professor Graulich, Professor of International Law, and Mr. Boland, Solicitor, Special Doctor on Administrative Law.

These rules, which are, at the present time, undersigned by all the members of the Governing Body, are being registered at the Ministry of Justice in Brussels, and will soon be published as the official rules of the International Association.

An English translation of the rules is included in the present issue of the Journal of Gerontology.

As a result, the seat of the International Association will move with each International Congress. The Governing Body will be renewed and will include an official delegate from each Society named for the period starting with each International Congress.

From the time of the opening of the International Congress to be held in St. Louis, the Chairman of the Governing Body will be Professor E. V. Cowdry.

The International Association of Gerontology was recognized by the C.C.I.C.M.S. (Council for the Coordination of International Congresses of Medical Sciences) at their meetings of March 16-17.

We are thus affiliated, through the C.C.I.C.M.S. to the U.N.E.S.C.O. and W.H.O. (World Health Organization).

After every International Congress, the official delegates from each Society become, by rights, members of the International Association of Gerontology. The other members from various societies who wish to enter the International Association need only to be introduced by the official delegate of their respective societies.

L. BRULL
President, International Association of Gerontology

June 4, 1951

The First International Gerontological Congress was held in Liège, Belgium, July 10-12, 1950. The officers elected were:

Honorary Presidents:	H. Fredericq (Belgium) H. von Euler (Sweden) L. Brull (Belgium)
Vice-Presidents:	E. V. Cowdry (U. S. A.) V. Korenchevsky (England) T. Geill (Denmark)
Secretaries:	N. W. Shock (U. S. A.) F. Bourlière (France) A. Divry (Belgium)

The Proceedings of the First International Gerontological Congress were published in the Revue Médicale de Liège, *5*: 593-728, copies of which may be purchased through the Journal of Gerontology, 660 South Kingshighway, St. Louis 10, Missouri.

It was decided to hold the Second International Gerontological Congress in St. Louis, Missouri, under the Presidency of E. V. Cowdry.

Official rules of the International Association of Gerontology

The undersigned:

1. L. BRULL, Professor at the University of Liège, residing in Liège, of the Société Belge de Gérontologie;

2. Professor R. E. TUNBRIDGE, of the British Society for Research on Aging;

3. Dr. M. WARREN, of the Medical Society for the Care of the Elderly;

4. Professor E. V. COWDRY, of the Gerontological Society, Inc., in the U. S. A.;

5. Professor W. B. KOUNTZ, of the American Geriatrics Society, in the U. S.A.;

6. Professor F. BOURLIERE, of the Société Française de Gérontologie;

7. Dr. J. A. HUET, of the Société Française de Recherches Gérontologiques;

8. Dr. A. L. VISCHER, of the Schweizerische Arbeitsgemeinschaft für Gerontologie;

9. Professor E. O. JALAVISTO, of the Societas Gerontologica Fennica;

10. Dr. T. GEILL, of the Dansk Selskab for Alderdomsforskning;

11. Dr. M. PANELLA-CASAS, of the Sociedad Española de Gerontología;

12. Professor H. von Euler, of the Svenska Gerontologiska Sällskapet;

13. Professor J. G. SLEESWIJK, of the Nederlandse Vereniging voor Gerontologie;

14. Professor E. GREPPI, of the Societa Italiana di Gerontologia e Geriatria;

15. Dr. J. FLEETWOOD, of the Irish Gerontological Society;

16. Dr. V. KORENCHEVSKY, Founder of the Association,

wishing to establish an international association with the hereafter mentioned scientific purposes, and in conformity with the Belgian law of October 25, 1919, have drawn up the rules thereof as follows:

STATUTES

Title I—Name and Place of Legal Registration

Article 1. The Association is called INTERNATIONAL ASSOCIATION OF GERONTOLOGY.

Article 2. The legal place of registration of the Association is established in Liège.

The legal wording of the rules is in French.

Title II—Aim

Article 3. The Association has two main purposes:

(a) To promote gerontologic research in the social, medical, and biologic fields, carried out by gerontologic associations, societies, or groups, by all possible means, and in particular to promote cooperation between the members of these societies, associations, or groups;

(b) To protect the interests of the gerontologic societies, associations, or groups in all questions pertaining to foreign or international matters (for instance, by applying to organizations such as U. N. O., U.N.E.S.C.O., C.C.I.C.M.S., W.H.O., B.I.T, or to the government of any country).

Title III—Members

Article 4. The undersigned are each and all members of the Association:

1. L. BRULL, Professor at the University of Liège, residing in Liège, of the Société Belge de Gérontologie;

2. Professor R. E. TUNBRIDGE, of the British Society for Research on Aging;

3. Dr. M. WARREN, of the Medical Society for the Care of the Elderly;

4. Professor E. V. COWDRY, of the Gerontological Society, Inc., in the U.S.A.;

5. Professor W. B. KOUNTZ, of the American Geriatrics Society, in the U.S.A.;

6. Professor F. BOURLIERE, of the Société Française de Gérontologie;

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14. Professor E. GREPPI, of the Societa Italiana di Gerontologia e Geriatria;

15. Dr. J. FLEETWOOD, of the Irish Gerontological Society;

16. Dr. V. KORENCHEVSKY, Founder of the Association.

Article 5. The following have a right to the membership of the Association:

1. The members of the Société Belge de Gérontologie, of the British Society for Research on Aging, of the Medical Society for Care of the Elderly, of the Gerontological Society, Inc. in the U.S.A., of the American Geriatrics Society in the U.S.A., of the Société Française de Gérontologie, of the Société Française de Recherches Gérontologiques, of the Schweizerische Arbeitsgemeinschaft für Gerontologie, of the Societas Gerontologica Fennica, of the Dansk Selskab for Alderdomsforskning, of the Sociedad Española de Gerontología, of the Svenska Gerontologiska Sällskapet, of the Nederlandse Vereniging voor Gerontologie, of the Societa Italiana de Gerontologia e Geriatria, of the Irish Gerontological Society.

Election to membership of the International Association of Gerontology is made by the Governing Body thereof, the nominations being made according to majority of votes. Applications for membership of the Association can only be placed before the Governing Body by the member of the Governing Body who belongs to the same society, association, or group as the applicant.

2. The members of other societies, associations, or groups, providing the General Assembly, which on the basis of a majority vote of the members present, has previously authorized the members of these societies, associations, or groups to be parties of the Association. The first among them shall be nominated by the General Assembly, and one of them shall be elected as member of the Governing Body, according to the regulations of Article 17. Afterwards, their nomination and application for membership shall be subjected to the same rules as those mentioned in (1) of this article.

Article 6. Members may withdraw from the Association at any time, providing a year's notice is given to the Chairman of the Governing Body, by means of a registered letter sent through the mail.

Acting on the majority of two-thirds of the votes of the members present, the Governing Body may decree the exclusion of a member. The decision may be appealed by the member to the General Assembly.

Article 7. The resigning or excluded members, as well as the claimants of deceased members, have no rights to the funds of the Association. They may neither claim the membership fees paid by themselves or relatives, nor may they insist upon a statement, a rendering of accounts, the affixing of seals, or a stock-taking.

Article 8. Each member of the present Association shall pay a yearly fee, the amount of which shall be decided upon every year by the General Assembly and which, for the first time, shall be equivalent to 50 Belgian francs.

Application for membership only binds a member to pay the amount of the fee.

Article 9. Members undertake to carry out the aims of the Association by all the means at their disposal.

Article 10. The funds of the Association are made up as follows:

(a) the yearly membership fees mentioned above;

(b) voluntary gifts;

(c) grants from governmental or non-governmental organizations;

(d) funds from any source whatsoever, provided the approval of the Governing Body is obtained.

Title IV—General Assembly

Article 11. The General Assembly has full powers to carry out the purpose of the Association.

Article 12. The General Assembly of the members of the Association is held, by right, at the time of each General Conference organized by the Association, either at the place of registration of the Association or at the place named in the notice of the meeting. This notice is given in the form of a non-registered letter sent by the Governing Body.

Article 13. Notice of a General Assembly may be sent out by the Governing Body or by the Executive Committee whenever the interests of the Association require such a measure.

Article 14. Each of the members may be represented at the Assembly by another member of the Association.

Article 15. Save for exceptional cases provided for by these rules, decisions are made by simple ma-

jority vote of the members present and are made known to all members.

Article 16. The resolutions of the General Assembly are entered on a register signed by the Chairman of the Executive Committee. This register is kept by the Chairman, who places it at the disposal of the members.

Title V—Administration

Article 17. The Association is governed by a Governing Body composed of associate members. The Governing Body includes as many persons as the number of societies, associations, or groups eligible to be parties of the Association.

This Governing Body shall include, for the first time, the persons named in Article 25.

At each General Conference, the members of the Governing Body shall be elected at the General Assembly held on this occasion.

Decisions are made by the General Assembly according to majority of the votes of the members present. The election shall take place in such a way that the Governing Body shall include a member of each society, association, or group which are parties of the Association. It is compulsory in order to be elected as the member representing the Société Belge de Gérontologie to be of Belgian nationality.

The members of the Governing Body shall appoint from among themselves, according to simple majority of votes, an Executive Committee including a President, three Vice-Presidents, and two Secretaries.

They may also appoint a Treasurer, who may be chosen from outside the Association. In this latter case, the Treasurer has only the right to vote on financial matters.

The members of the Governing Body and Executive Committee are elected for the period between two General Conferences. They may be re-elected.

Notwithstanding the provisions of these rules, Professor Dr. KORENCHEVSKY is appointed member for life of the Governing Body of the Association.

Article 18. The Governing Body has the fullest authority to manage the affairs of the Association. Everything which is not reserved by law or by the present statutes for the General Assembly, falls within its authority.

The Governing Body may expressly accept and conclude all contracts, acquire or alienate, rent or let, any personal property or real estate, lend, borrow, pledge the personal property of the society and mortgage the real estate, with or without stipulation of judicial sale, grant total or partial replevin of all summons, seizures, oppositions and registrations, as well as of all registrations of mortgages whether made officially or by agreement, carry out all subrogations and accept their mentions, the whole with or without accounting for payments, effect and receive all payments, and give good and due receipts thereof.

The transactions of everyday administration fall within the authority of the Governing Body, such as correspondence, ordinary engagements, bills and drafts, cheques, receipts, and other similar securities, documents for the Treasury Department, and for the post-office, railways, or other public services.

The Executive Committee, represented by their President or by one of their members appointed by the President for this purpose, may also sue all debtors before the courts, plead before any jurisdiction, undertake any personal or real action, maintain their defence, carry out all judgments and seizures, transact, compromise, and compound.

Article 19. All engagements binding the Association must be validly signed by two members of the Governing Body if they fall within the authority of the Governing Body, or by the Executive Committee if they fall within the authority of the latter organization.

Article 20. The Governing Body holds meetings as often as necessary in the interests of the Association; their resolutions are taken according to majority vote of members present; the Chairman has the deciding vote.

Article 21. The resolutions of the Governing Body are entered in a register signed by the Chairman of the Executive Committee. This register is kept by the Chairman, who places it at the disposal of the members.

Title VI—Budget and Accounts

Article 22. The financial year ends every year on December 31. Every year the Governing Body must place before the General Assembly the accounts of the past year and the budget for the following year.

Title VII—Alterations to the Rules and Dissolution of the Association

Article 23. Any motion put forward tending to modify the rules or to dissolve the Association must come from the Governing Body or from at least twenty members of the Association.

The Governing Body must inform the members of the Association, with at least three months' notice, of the date of the general meeting which has to deal with such a motion.

No decision may be taken unless voted by a majority of two-thirds of the members present at the meeting.

Modifications of the rules take effect after having been approved by royal decree and after fulfilling the required conditions for publication as stipulated in Article 3 of the Law of October 25, 1919.

The General Assembly decides how the Association is to be dissolved and liquidated.

Title VIII—General Provision

Article 24. All matters not provided for in the present rules and particularly announcements in the "Moniteur Belge," shall be dealt with according to the Law of October 25, 1919, which grants legal status to international associations with a scientific aim.

Title IX—Appointment of the members of the Governing Body

Article 25. The first members of the Governing Body shall be:
Messrs.

L. BRULL, Belgian, residing at Wandre-Liège, 12 rue Priesvoie, Liège, Belgium;

R. E. TUNBRIDGE, residing at the Department of Medicine, General Infirmary, Leeds, England;

M. WARREN, residing at the Geriatric Unit, West Middlesex Hospital, Isleworth, Middlesex, England;

E. V. COWDRY, residing at 14 North Kingshighway, St. Louis, Missouri, U.S.A.;

W. B. KOUNTZ, residing at 2619 Gurney Court, St. Louis, Missouri, U.S.A.;

F. BOURLIERE, residing 8, rue Huysmans, Paris 6e, France;

J. A. HUET, residing at 19 Ave. de la Marne, Asnieres, France;

A. L. VISCHER, residing 82, St. Johannsvorstadt, Basle, Switzerland;

E. JALAVISTO, residing Institute of Physiology, University of Helsinki, Giltavnorenpenger 20, Helsinki, Finland;

T. GEILL, residing 18 Barsehøj, Copenhagen, Denmark;

M. PANELLA-CASAS, residing Caspe, 33 A 1°, 2 a, Barcelona, Spain;

H. VON EULER, residing Observatorielunden, Stockholm 6, Sweden.

J. G. SLEESWIJK, residing 32 Frankenstraat, The Hague, Netherlands;

E. GREPPI, residing 79, Viale Milton, Florence, Italy;

J. FLEETWOOD, residing Glenvera, Proby Square, Blackrock, Dublin, Ireland;

V. KORENCHEVSKY, residing 36, St. Margaret's Road, Oxford, England;

all above-mentioned.

The appointed members of the Governing Body elect, unanimously, the following as members of the Executive Committee.

L. BRULL, Professor at the University of Liège, residing at Wandre-Liège, 12 rue Priesvoie, as Chairman;

Professor E. V. COWDRY, Dr. V. KORENCHEVSKY and Professor W. B. KOUNTZ, all three as Vice-Presidents;

Professor F. BOURLIERE and Dr. T. GEILL, both as Secretaries;

Professor P. MOUREAU, as Treasurer.

Such are the decisions between the parties concerned who mutually agreed to accept them.

Drawn up in as many copies as there are of parties with a distinct interest, at Liége, on December 3, 1950.

Index of Participants

*Delegate nominated by government.
†Delegate nominated by scientific society or university.
‡Member of Governing Body of the International Association of Gerontology.

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